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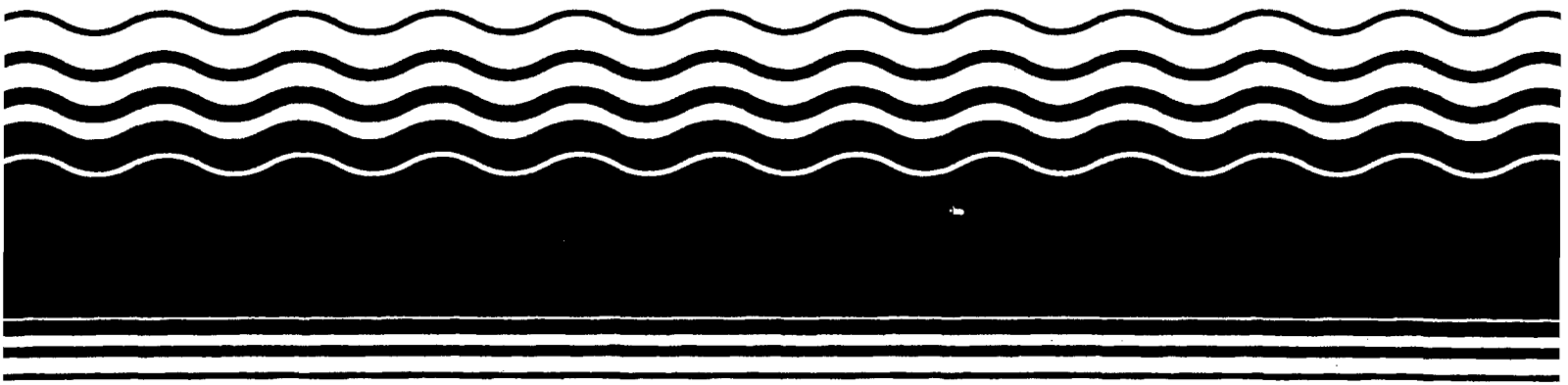
PB97-963803

EPA/541/R-97/011

November 1997

# **EPA Superfund Record of Decision:**

**Plattsburgh Air Force Base,  
(Former Landfill LF-024),  
Plattsburgh, NY  
3/25/1997**



**FORMER LANDFILL LF-024  
RECORD OF DECISION**

**PLATTSBURGH AIR FORCE BASE  
PLATTSBURGH, NEW YORK**

**FINAL  
MARCH 1997**

**PLATTSBURGH AIR FORCE BASE  
INSTALLATION RESTORATION PROGRAM**

**PREPARED BY:  
URS GREINER, INC.**

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## **DECLARATION FOR THE RECORD OF DECISION**

### **SITE NAME AND LOCATION**

Plattsburgh Air Force Base (AFB)

Former Landfill LF-024

Plattsburgh, New York

### **STATEMENT OF BASIS AND PURPOSE**

This Record of Decision (ROD) presents a selected remedial action for soil and groundwater at site LF-024 on Plattsburgh AFB in Plattsburgh, New York. It has been developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record for this site, a copy of which is located at the Information Repository at the Feinburg Library on the campus of the State University of New York at Plattsburgh.

The remedy has been selected by the US Air Force (USAF) in conjunction with the US Environmental Protection Agency (USEPA) and with the concurrence of the New York State Department of Environmental Conservation (NYSDEC) pursuant to the Federal Facilities Agreement among the parties under Section 117(a) of CERCLA, dated July 10, 1991.

### **ASSESSMENT OF THE SITE**

Hazardous substances present in fill and soil at LF-024, and contamination of the underlying groundwater, if not addressed by implementing the response action selected in this ROD, may present a potential endangerment to human health and the environment.

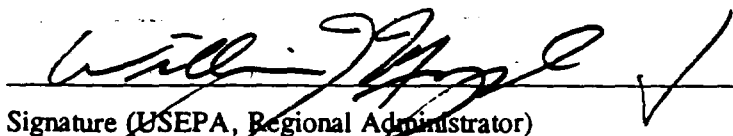
## DESCRIPTION OF THE REMEDY

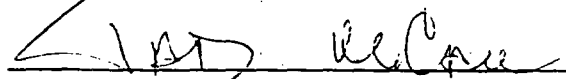
This action addresses the principal threat posed by LF-024 by preventing endangerment to human health and the environment, through containment of the landfill to minimize exposure to contaminants in the soil, waste and groundwater. The proposed source control remedy includes a re-establishment and upgrade of the native soil cap over the landfill; institutional controls to restrict site development, maintenance to protect the integrity of the cap, restrictions preventing the use of groundwater as a potable supply source on, and immediately downgradient of the site; periodic groundwater monitoring for 30 years; site reviews to be conducted every five years; and development of a post-closure plan specifying inspection, maintenance, and monitoring programs to be conducted over 30 years.

## STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with federal and state Applicable or Relevant and Appropriate Requirements, and is cost-effective. The remedy is based on the presumptive remedy approach developed by the USEPA for military landfill sites. Using the presumptive remedy for this site, treatment of waste, soil and groundwater contamination is considered impractical and consequently, the remedy does not satisfy statutory preference for treatment as a principal element of remediation.

Because this remedy will result in hazardous substances remaining on site, the USAF, USEPA, and NYSDEC will conduct site reviews every five years to ensure that the source control remedy continues to provide adequate protection of human health and the environment.

 3/25/81  
Signature (USEPA, Regional Administrator) Date

 12 MAR 91  
Signature THOMAS W.L. McCALL, JR. Date  
Deputy Assistant Secretary of the Air Force  
(Environment, Safety and Occupational Health)

## 1.0 SITE NAME, LOCATION AND DESCRIPTION

Plattsburgh AFB is located in Clinton County in northeastern New York State, bordered on the north by the City of Plattsburgh, on the east by Lake Champlain, and on the north and south by the Saranac and Salmon Rivers. It lies approximately 26 miles south of the Canadian border and 167 miles north of Albany. (Figure 1). As part of the USAF's IRP, Plattsburgh AFB initiated activities to identify, evaluate, and restore identified hazardous waste sites. The IRP at Plattsburgh AFB is being implemented according to a Federal Facilities Agreement (Docket No.: II-CERCLA-FFA-10201) signed between the USAF, USEPA, and NYSDEC on July 10, 1991. Plattsburgh AFB was placed on the National Priorities List on November 21, 1989.

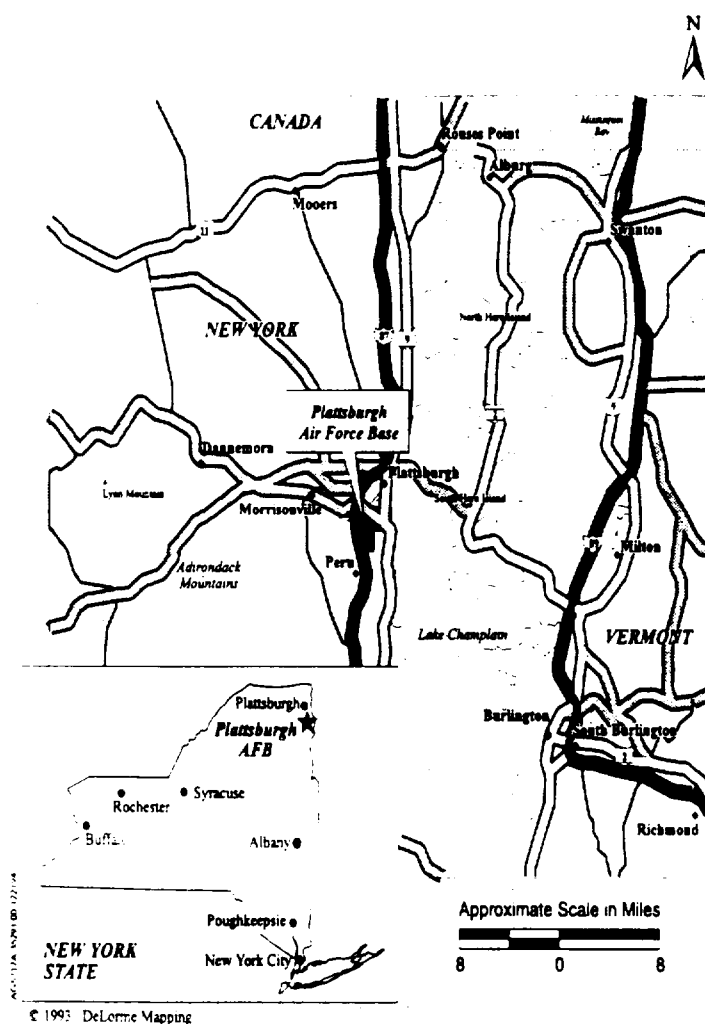
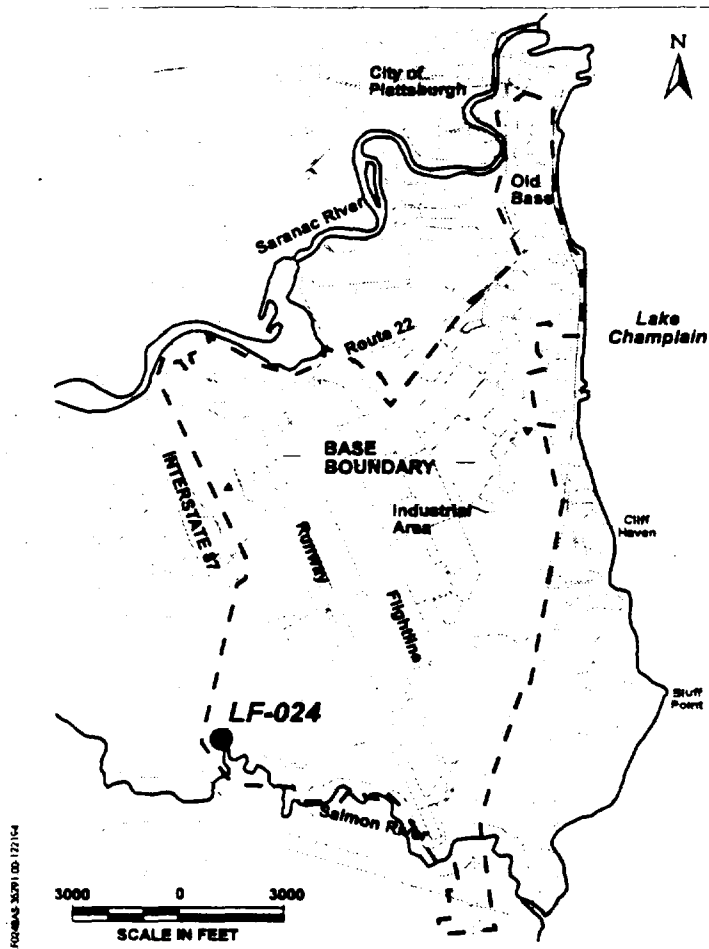


Figure 1: Vicinity Location Map

Plattsburgh AFB was closed on September 30, 1995 and its reuse is being administered by the Air Force Base Conversion Agency in conjunction with the Plattsburgh Airbase Redevelopment Corporation (PARC). Land use for the southwestern section of the base (including the area of LF-024), has been designated as either open space with light industrial use (Final Comprehensive Reuse Plan, September 1995), or as mixed aviation/industrial use with open space (Final Environmental Impact Statement, October 1995). It is the intent of the Base Conversion Agency to limit use of LF-024 as specified in the Environmental Impact Statement.

LF-024 is an approximately 1-acre landfill located southwest of the Plattsburgh AFB Flightline, between the southern edge of the Explosive Ordnance Disposal Range and



**Figure 2: Site Location Map**

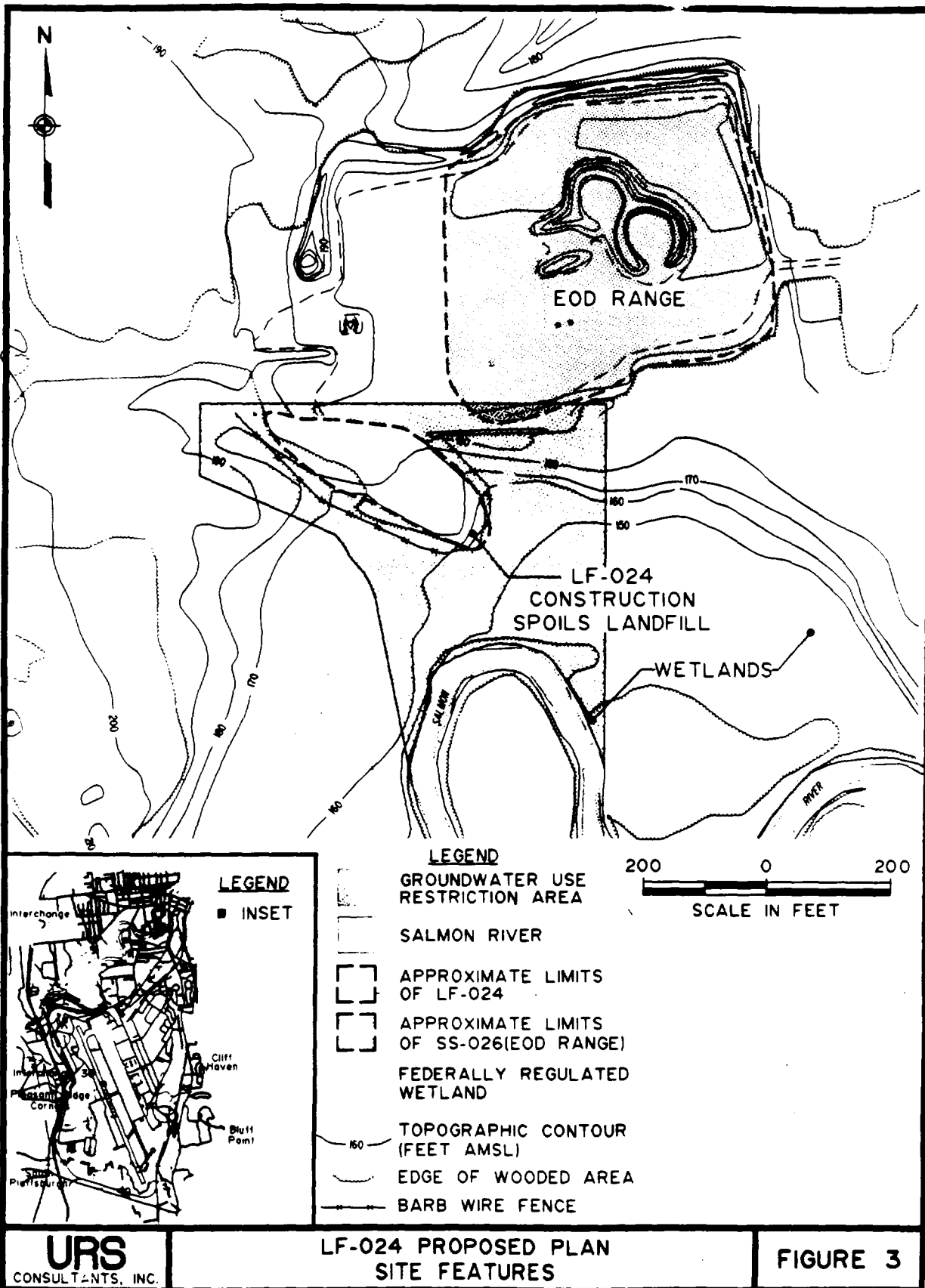
the Salmon River (Figure 2). Pedestrian access to the landfill is limited due to the presence of I-87 to the west, the Salmon River to the south, and woods to the north and east. A four-strand barbed wire fence encompasses LF-024, but is absent along the northern portion of the site (Figure 3). In general, the landfill is in a remote section of the base not frequented by maintenance personnel.

The site is a flat-topped mound with steep sides covered by grass and surrounded by a ring of woods and brush (Photos 1 and 2). The southern sideslope is tree-covered and debris protrudes from the toe of slope (Photos 3 and 4). Soil surrounding the sandy fill of the landfill consists primarily of silty sand. Beneath the landfill, an upper

sand aquifer overlies a clayey silt layer which appears to serve as a confining layer for the underlying bedrock aquifer. The groundwater surface lies near the base of the landfill, where it appears to be confined by the underlying clayey silt layer which occurs near or at the base of the landfill. The Salmon River is assumed to serve as a discharge point for local groundwater which flows toward the southeast. Residents in the surrounding areas are located at least 3,000 feet from the site.

## **2.0 LAND USE AND RESPONSE HISTORY**

From 1980 to 1986, LF-024 was used for the disposal of construction and demolition debris. Landfill wastes were end dumped, dozer compacted, and covered with sandy soil from surrounding areas. E.C. Jordan Co. reported that oil from transformers may have been disposed of in the landfill (1989); however, polychlorinated biphenyls (PCBs) were not detected in any of the media during subsequent sampling and





**PHOTO 1 - View from the north central perimeter of LF-024 toward the southeast showing the generally good cover of grasses and small trees on the upper landfill surface. Larger pine trees in the left background mark the easterly landfill limits.**



**PHOTO 2 - Although the landfill surface is generally well vegetated, some bare areas are present. This photo shows an area of sparsely vegetated sandy soil near the center of the landfill.**

#### **SITE PHOTOS -LF-024**



**PHOTO 3 - View from southeast to northwest along the southern sideslope of LF-024 (just north of MW-4) showing a cover of small to medium size trees.**



**PHOTO 4 - View from the southeast to northwest along the toe of the southern sideslope showing exposed construction/demolition and shop debris. This view is typical of the southern and western landfill lower sideslopes.**

#### **SITE PHOTOS - LF-024**

analysis. During field investigations 18 drums were observed protruding from the fill at the toe of the landfill, many of which were crushed or without lids. Drums that appeared to be intact sounded hollow and were presumed to be empty. Efforts to sample the drums during the SI were not undertaken, though a sediment sample was collected from the area of several drums and did not reveal the presence of contamination. Subsequent inspection of the landfill by URS Consultants, Inc. (URS) personnel failed to identify any drums. The USAF has no records indicating that drums were disposed of at the landfill, and it is believed they were used for trash collection.

A site investigation (SI) was performed at LF-024 in the summer of 1993 which included the following: 1) terrain conductivity, magnetometer, and soil gas surveys; 2) excavation of three test pits; 3) installation and sampling of one monitoring well and three well points; and 4) analysis of eleven soil, four sediment, and two surface water samples. Samples were analyzed for the full target compound and target analyte lists. Based on the results of the investigation, the SI report (Malcolm Pirnie 1994) concluded that no further investigation or remedial action was necessary. The database compiled as part of the SI was utilized to quantify potential risk posed to human health (URS 1995a).

### **3.0 COMMUNITY PARTICIPATION**

Plattsburgh AFB has kept the community and other interested parties informed of the activities at LF-024 through informational and public meetings, holding a 30-day public comment period from January 6, 1997 to February 6, 1997 to solicit public input. During this period, the public was invited to review the Proposed Plan, the LF-024 SI and to comment on the remedial alternative being considered. These documents, which comprised the Administrative Record for the LF-024 site, available at the Information Repository located at the Feinberg Library on the campus of the State University of New York at Plattsburgh.

Plattsburgh AFB also hosted a public meeting on January 16, 1997 at the City of Plattsburgh Old Court House to discuss the data gathered at the site, the preferred alternate, and the decision-making process. Immediately after the information presentation, Plattsburgh AFB held a formal Public Hearing to accept comments about the remedial alternative being considered for the LF-024 site. Public comments were recorded and transcribed, and a copy of the transcript was added to the Administrative Record and Information

Repository and are a part of this Record of Decision (Appendix D). A response to the comments included in the responsiveness summary is part of this Record of Decision (Appendix E).

#### **4.0 SCOPE AND ROLE OF RESPONSE ACTION**

This ROD addresses all of the principal threats posed by LF-024 to human health and the environment. The primary threat is risk associated with potential human inhalation of exposed fill material as fugitive dust and physical hazards posed by exposed construction debris. Metals contamination (principally manganese) also occurs in groundwater at the site. There is no impact on surface water or air quality associated with the landfill.

The USAF has utilized the USEPA's containment presumptive remedy for military landfills to help determine an appropriate remedy for LF-024. Because of the large amount and heterogeneous nature of the material within the landfill, and the fact that the local land reuse authority (PARC) currently has no plans for the future use of the site, treatment is not considered practical. Containment, therefore, is considered the appropriate response action, or the presumptive remedy, for LF-024. The remedy recommended in this Plan addresses the principal threats through the removal of exposed debris, capping (containment), monitoring of groundwater, and institutional controls to protect the integrity of the cap and prohibit the use of groundwater as a potable supply source on, and immediately downgradient from the site.

#### **5.0 SUMMARY OF SITE CONTAMINATION**

##### **5.1 Contaminant Pathways**

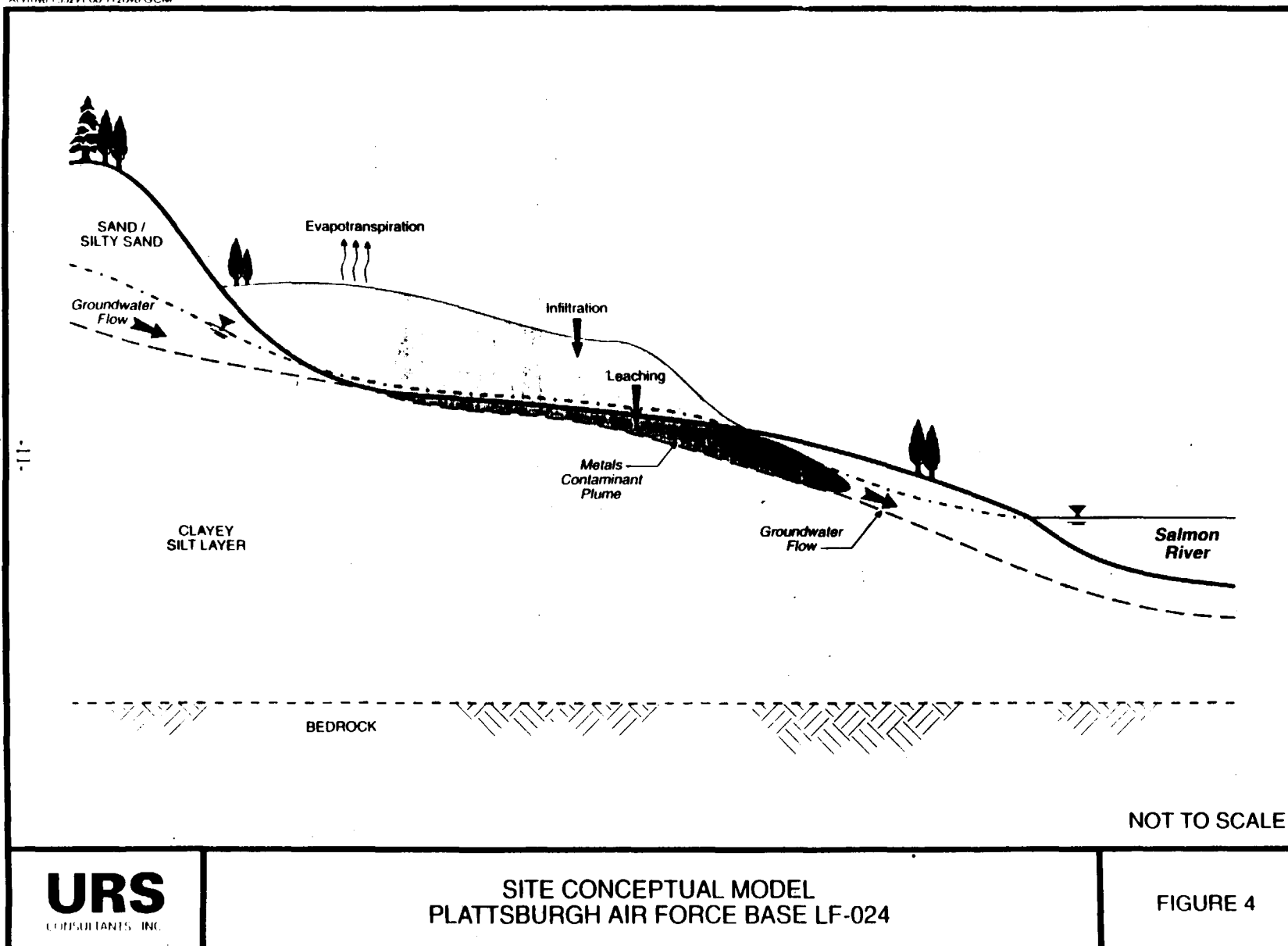
Potential pathways by which contaminants might leave LF-024 are evaluated based on results of the SI investigation. Air pathways appear to be insignificant because dust generation is limited by the landfill vegetation and soil cover. Volatile organic compounds (VOCs) were detected infrequently and at low concentrations in the soil cover and waste, although elevated levels of metals in the fill do present an inhalation risk where the waste is exposed. Inspection of the landfill indicates that surface run-off from the landfill is confined to the landfill perimeter with rapid infiltration and evaporation of run-off at the margins of the landfill following heavy rain events. The only potentially significant contaminant migration pathway is vertical

leaching of contaminants (i.e., metals) by percolating precipitation, with eventual transport downgradient through groundwater. The site conceptual model is shown in Figure 4. Groundwater flow at the site is shallow and vertically confined by underlying silty sediments which occur at or near the base of the landfill. Contaminant movement downgradient of the site (which will be monitored) is expected to be limited due to the relative immobility of metals. Chemicals detected in the various environmental media at LF-024 are listed and mapped in Appendix A.

## **5.2 Soil/Fill Contamination**

Eleven soil/fill samples were analyzed during the SI including two subsurface soil samples from the upgradient monitoring well location (depths 0 to 2 feet and 5 to 7 feet), three near surface soil samples obtained from the three downgradient well point locations (1 to 3 feet depth), and six fill samples taken from the three test trenches (two per trench). The six fill samples, which were obtained at depths up to 12 feet, consisted of soil backfill that was mixed with the landfill debris composed of assorted trash, construction materials including corrugated steel, and wood.

In general, organic compounds were detected infrequently in soil/fill samples (Tables A-2, A-3, and A-4). Metals were detected much more frequently, as would be expected, since metals occur naturally in soil, are non-volatile, and do not biodegrade. The level of contamination in soil/fill was evaluated by comparing the detected concentrations to NYSDEC guidelines for soil cleanup (TAGM #4046, January 1994). This comparison is summarized in Table 1. One of the nineteen organic compounds (benzo(a)pyrene), and seven of the nineteen metals (antimony, magnesium, manganese, mercury, potassium, selenium, and thallium) were detected above the guideline values with most exceedances occurring in one sample (fill sample 02 at 5 feet) from TP24-001 (see Figures A-2, A-3, and A-4). As shown on Table 1, detection of these analytes above the guideline values was infrequent and in most cases marginally above guidance values. Low level exceedances of the guideline criteria for manganese, nickel and potassium also were found in near surface soil samples from the well point locations. In general, the metals contamination observed in the soil/fill samples is likely attributable to the leaching of metals from C&D debris constituting the landfill.



**TABLE I**  
**CONSTRUCTION SPOILS LANDFILL (LF-024)**  
**CHARACTER OF SOIL/FILL CONTAMINATION**

<u>Analyte</u>	<u>Guidance Values</u>	<u>Frequency of Detection Above Guidance Value</u>	<u>Detected Maximum Concentration</u>	<u>Source of Guidance Exceedance</u>
Benzo(a)pyrene	61*	1/14	74	Test Trench
Antimony (mg/kg)	12.6 (SB)	1/14	15.4	Test Trench
Magnesium (mg/kg)	3,340 (SB)	2/14	5,459	Test Trench
Manganese (mg/kg)	474 (SB)	3/14	5,455	Test Trench
Mercury	0.1*	1/14	0.17	Test Trench
Nickel (mg/kg)	13*	1/14	28	Near Surface Soil
Potassium (mg/kg)	929 (SB)	3/14	1,160	Test Trench & Near Surface Soil
Selenium (mg/kg)	2*	2/14	655	Test Trench
Thallium (mg/kg)	Non Detection	1/14	104	Test Trench

Organic results reported in  $\mu\text{g/kg}$ . Inorganic results reported in  $\text{mg/kg}$ .

\* - NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM #4046, January 1994.

SB - Site background value. Based on base-wide background study (URS 1995b).

### **5.3 Surface Water/Run-off and Sediment Contamination**

Surface water and sediment samples were collected at the toe of the landfill where water from run-off was observed to pool after heavy rains. Flowing seeps were not observed during the SI. Since these pools subsequently infiltrate into the underlying soil or evaporate within a few days, the sediment samples can be considered to belong to the soil medium.

The level of contamination from run-off and possible seeps was evaluated by comparing sediment/soil sample analytical data to NYSDEC soil cleanup guidelines (NYSDEC 1992) and the water data to NYSDEC standards for Class A surface water quality (6 NYCRR 703.5). These comparisons are summarized in Table 2 and shown on Figure A-1 (Appendix A). Two of thirteen organic compounds and three of seventeen metals detected in sediment (soil) samples exceeded the soil cleanup guidelines (Table A-1). None of the four organic compounds detected and three of fourteen metals detected exceeded surface water quality standards.

### **5.4 Groundwater Contamination**

Groundwater samples were collected from one upgradient monitoring well and three downgradient well points that were installed using hand-driven well points. Well points were installed during the SI instead of monitoring wells because of safety concerns in maneuvering drilling equipment to the sample locations and in conducting drilling activities. Hence, hand driven well points were installed because of the relative ease of driving well points to monitor shallow groundwater. Since the monitoring well was installed with a sand filter around the well screen (whereas the well points were not), the sample from the well contained less suspended fines which probably accounts for the lower concentration of total metals reported in the monitoring well sample.

Three organic compounds, twenty metals, and cyanide were detected in groundwater. The level of groundwater contamination was evaluated by comparing unfiltered and filtered groundwater samples to NYSDEC standards (6 NYCRR 703.5 and 703.6) and USEPA drinking water standards established by 40 CFR 141 and 143. Results of the comparison are summarized in Table 3. One of the three organic compounds detected and eleven of twenty metals detected in the unfiltered groundwater were present at concentrations above groundwater standards (Table A-5). The concentrations of metals detected in the filtered groundwater

**TABLE 2**  
**CONSTRUCTION SPOILS LANDFILL (LF-024)**  
**CHARACTER OF SURFACE WATER RUN-OFF AND LEACHATE SEEPS**

<b>SEDIMENT (SOIL) SAMPLES</b>			
<b>Analyte</b>	<b>Guidance Value</b>	<b>Frequency of Detection Above Guidance Value</b>	<b>Detected Maximum Concentration</b>
Acetone	200*	1/4	300
Benzo(a)pyrene	61*	2/4	130
Antimony (mg/kg)	12.6 (SB)	2/4	20.5
Manganese (mg/kg)	474 (SB)	1/4	542
Mercury (mg/kg)	0.1*	1/4	0.18
<b>WATER SAMPLES</b>			
<b>Analyte</b>	<b>Water Quality Standard**</b>	<b>Frequency of Detection Above Guidance Value</b>	<b>Detected Maximum Concentration</b>
Aluminum (µg/l)	100	1/1	1,960
Iron (µg/l)	300	2/2	15,100
Manganese (µg/l)	300	1/1	1,310

Organic soil results reported in µg/kg. Inorganic soil results reported in mg/kg. Aqueous inorganic results reported in µg/l.

\* - NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM #4046, January 1994.

SB - Site background value. Based on base-wide background study (URS 1995b).

\*\* - NYSDEC Surface Water and Groundwater Quality Standards, 6 NYCRR 703.5.

TABLE 3

**CONSTRUCTION SPOILS LANDFILL (LF-024)  
CHARACTER OF GROUNDWATER CONTAMINATION**

<u>Analyte</u>	<u>ARAR Value*</u>	<u>Unfiltered Samples</u>		<u>Filtered Samples</u>	
		<u>Frequency of Detection Above Guidance Value</u>	<u>Detected Maximum Concentration</u>	<u>Frequency of Detection Above Guidance Value</u>	<u>Detected Maximum Concentration</u>
2-Methylphenol	1	1/4	2	--	--
Antimony	3	1/4	87.6	0/4	ND
Barium	1,000	1/4	1,790	0/4	195
Beryllium	3	1/4	10.3	0/4	ND
Chromium	50	3/4	338	0/4	ND
Iron	300	4/4	250,000	1/4	82,700
Lead	15**	3/4	85.9	0/4	ND
Magnesium	35,000	3/4	65,600	0/4	33,700
Manganese	300	3/4	15,100	1/4	3,970
Sodium	20,000	1/4	31,300	1/4	28,900
Thallium	4	2/4	9.3	1/4	6.8
Zinc	300	3/4	2,770	0/4	96

All results reported in  $\mu\text{g/l}$ .

\* - Unless otherwise noted, ARARs are NYSDEC Ambient Water Quality Standards (6 NYCRR 703.5 and 703.6).

\*\* - USEPA Drinking Water Standards 40 CFR 141.

samples were considerably less than concentrations reported in the unfiltered samples, reflecting the effect of sample turbidity on the total metals concentration. In the filtered samples, only four metals (iron, manganese, sodium, and thallium) exceeded groundwater standards at one well point location. In the groundwater sample from the upgradient monitoring well, only one metal (an unfiltered iron sample) exceeded groundwater standards. In addition, the concentrations of metals in the upgradient unfiltered sample were significantly lower than concentrations reported in the well point samples (see Figure A-5, Appendix A).

## 6.0 SUMMARY OF SITE RISKS

A human health risk assessment was conducted to estimate current and future risks at the site if no Remedial Action was taken. Chemicals selected for use in evaluation of risks are indicated on Table 4. Compounds were chosen based on frequency of detection, chemical-specific toxicity information, and exceedance of background levels (for inorganics only).

### 6.1 Human Health Risk Assessment

Five steps are followed in assessing site-related human health risks: *Hazard Identification* - determines the contaminants of concern at the site based on toxicity, frequency of occurrence, and concentration. *Exposure Assessment* - estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., dermal contact with soil) by which humans potentially are exposed. *Toxicity Assessment* - determines adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). Toxicity values used for analytes of concern in this study are provided in Appendix B. *Risk Characterization* - summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks. *Uncertainty Analysis* - qualifies the quantitative results of the risk assessment based upon the uncertainty associated with the assumptions made in the analysis. Generally, assumptions made in the assessment process are conservative, so that actual risk is unlikely to be greater than the estimated risk. For example, groundwater total metal results were used to assess risk associated with groundwater ingestion as opposed to the filtered metals data. However, groundwater used for drinking water would be better represented by filtered (no solids) data, hence risks are overestimated. Consequently, the HRA for LF-024 is not to be taken as a characterization of absolute risk, but rather, as an overestimation of the actual risk.

**TABLE 4**  
**CONSTRUCTION SPOILS LANDFILL (LF-024)**  
**CHEMICALS OF POTENTIAL CONCERN**  
**SUMMARY TABLE**

CHEMICAL	TOXICITY	GROUNDWATER	SURFACE SOIL	SOIL
Methylene Chloride	C	X	X	X
Acetone			X	X
2-Butanone			X	X
Acenaphthylene			X	X
Anthracene			X	X
Benzoic Acid				X
Benzo(a)anthracene	C		X	X
Benzo(a)pyrene	C		X	X
Benzo(b)fluoranthene	C		X	X
Benzo(k)fluoranthene	C		X	X
Benzo(g,h,i)perylene			X	X
bis(2-Ethylhexyl)phthalate	C	X	X	X
Butylbenzylphthalate	C		X	X
Chrysene	C		X	X
Diethylphthalate			X	X
Di-n-butylphthalate			X	X
Fluoranthene			X	X
Fluorene				X
Indeno(1,2,3-cd)pyrene	C		X	X
2-Methylnaphthalene			X	X
2-Methylphenol	C	X		
Naphthalene			X	X
4-Nitroaniline			X	X
Phenanthrene			X	X
Pyrene			X	X
Aluminum		X		
Antimony		X		
Arsenic	C	X	X	X
Barium		X	X	
Beryllium	C	X		
Chromium (III)		X		
Chromium (VI)	C	X		
Cobalt		X		
Cyanide		X		
Lead	C	X		
Manganese		X	X	X
Mercury		X		
Nickel		X		
Selenium				X
Thallium		X		X
Vanadium		X		
Zinc		X		

Notes

X - Indicates chemical of potential concern  
 C - Chemical is classified as a carcinogen

Two human exposure scenarios were evaluated as part of the risk assessment at LF-024.

- 1) **Current Site Conditions** - This scenario assumes that the site will remain undeveloped and will be accessible to trespassers. Potentially exposed populations include teenage (ages 13 through 18) and adult (ages 18 and over) trespassers. Potential exposure pathways include dermal contact with and incidental ingestion of soil.
- 2) **Future Site Conditions** - This scenario assumes that the site will be remediated and developed for industrial use. Potentially exposed populations include construction workers during site development and industrial workers after site development. Potential exposure pathways include dermal contact with and incidental ingestion of soil, inhalation of fugitive dust, and ingestion of groundwater.

Current federal guidelines for acceptable exposures are expressed as an individual lifetime excess total cancer risk in the range of  $10^{-4}$  to  $10^{-6}$  and a maximum total hazard index (which reflects noncancer risks) equal to one. A hazard index (HI) greater than one indicates a potential for adverse health effects.

The results of the HRA are summarized in Table 5. For current site conditions, cancer risks and hazard indices for potentially exposed populations are below federal guidelines, and risks to human health posed by site contaminants are acceptable. For projected future site conditions, cancer risks fall near the upper end of the acceptable range specified by federal guidelines; however, hazard indices for both construction and maintenance workers (HI = 20 for the inhalation of fugitive dust) and industrial workers (HI = 10 for the ingestion of groundwater) are above federal guidelines. Therefore, there is a potential for adverse health effects. Inhalation of fugitive dust is the pathway of concern for construction workers, and ingestion of groundwater is the pathway of concern for industrial workers. Manganese is the primary constituent driving the unacceptable health risk for both soil and groundwater, with minor contribution from aluminum, antimony, barium, and vanadium in groundwater.

Groundwater at the site currently is not used as a source of drinking water and is unlikely to be used in the future given the extremely limited yield capacity of the shallow water-bearing zone. The assumptions concerning risks associated with groundwater ingestion are also conservative given that the analysis was performed using total metals data from turbid groundwater samples.

**TABLE 5**

**CONSTRUCTION SPOILS LANDFILL(LF-024)  
CANCER RISKS AND HAZARD INDICES FOR MULTIPLE PATHWAYS**

EXPOSURE PATHWAY	CURRENT USE				FUTURE USE			
	TRESPASSER				CONSTRUCTION WORKER		INDUSTRIAL WORKER	
	ADULT		TEENAGER		CANCER RISK	HAZARD INDEX (SUBCHRONIC)	CANCER RISK	HAZARD INDEX (CHRONIC)
	CANCER RISK	HAZARD INDEX (CHRONIC)	CANCER RISK	HAZARD INDEX (SUBCHRONIC)				
Dermal contact with soil	NV	NV	NV	NV	NV	NV	NV	NV
Ingestion of soil	8E-07	2E-02	2E-07	2E-02	1E-07	8E-01	5E-07	4E-02
Inhalation of fugitive dust	NA	NA	NA	NA	2E-08	2E+01	NA	NA
Ingestion of groundwater	NA	NA	NA	NA	NA	NA	2E-04	1E+01
<b>TOTAL EXPOSURE CANCER RISK</b>	<b>8E-07</b>		<b>2E-07</b>		<b>1E-07</b>		<b>2E-04</b>	
<b>TOTAL EXPOSURE HAZARD INDEX</b>		<b>2E-02</b>		<b>2E-02</b>		<b>2E+01</b>		<b>1E+01</b>

**ABBREVIATIONS:**

NV - No Value (Dermal absorption factors were not available for CPCs.)

NA - Not Applicable

## **6.2 Ecological Risk Assessment**

An ecological risk assessment was not performed for LF-024 as part of the SI. Also, the ecological risks to potentially impacted terrestrial organisms exposed to contaminated fill and groundwater are expected to be negligible. Because of the limited area of the landfill (approximately 1 acre), effects on populations of small burrowing mammals (e.g., the meadow mouse) are expected to be minimal and likely to impact only animals with a home range restricted to the fill limits. Contaminants associated with groundwater also are unlikely to affect area ecology significantly, since exposure to groundwater is limited and the metals plume is confined to the area immediately downgradient of the landfill.

## **7.0 DEVELOPMENT OF REMEDIAL ALTERNATIVE**

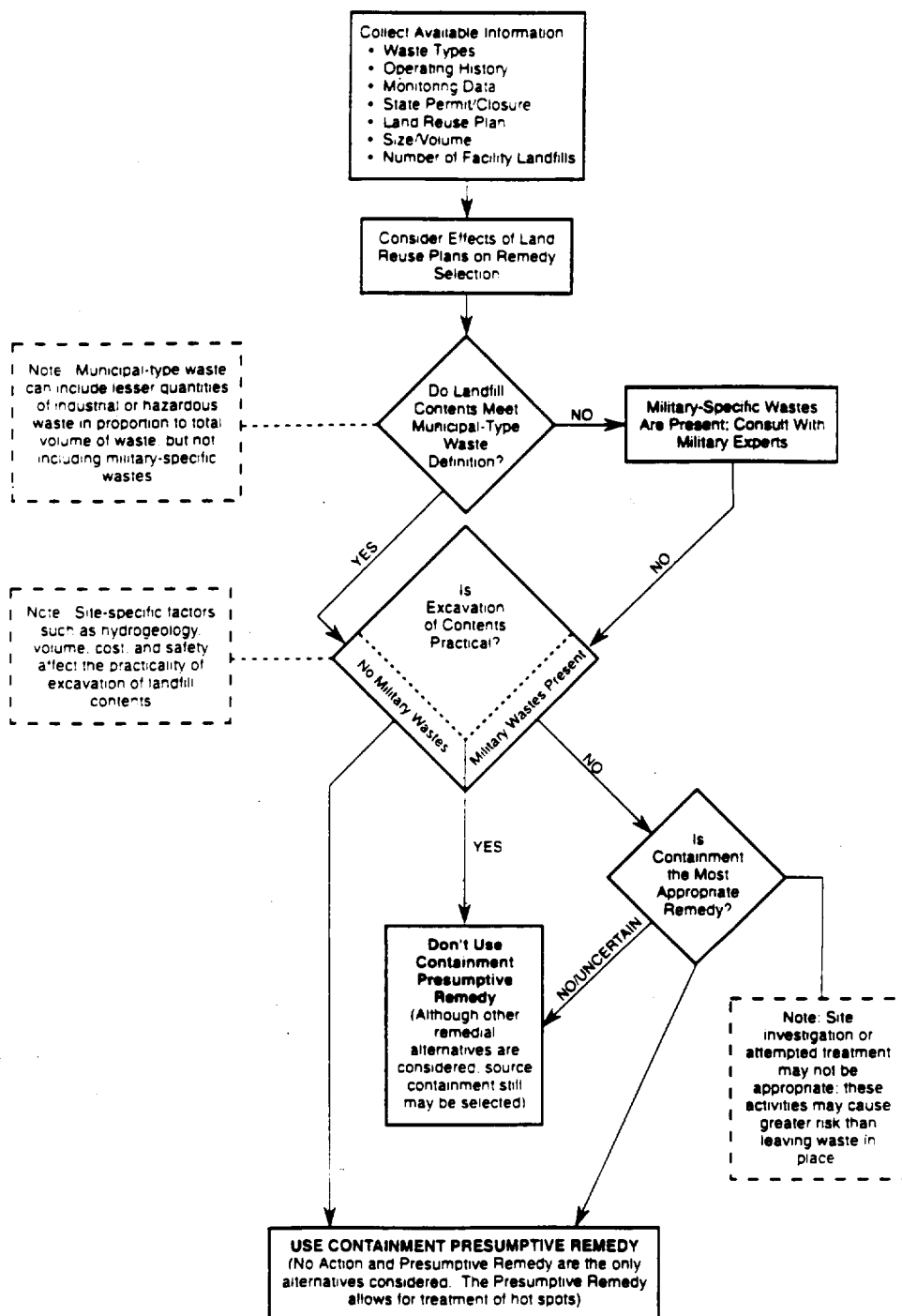
### **7.1 Selection of the Presumptive Remedy for Military Landfills**

Based on information acquired as a result of past experience with the Superfund Program, the USEPA has developed the presumptive remedy approach to accelerate the remediation process. Presumptive remedies are preferred technologies for common categories of sites (e.g., landfills) that are based on historical patterns of remedy selection and on scientific and engineering evaluations of technology performance. The presumptive remedy approach is a tool for expediting of the remedial process developed by the Office of Federal Facilities Restoration and Reuse.

In keeping with this approach, a remedial investigation/feasibility study (RI/FS) was not prepared for LF-024. Instead, existing site data have been used to perform a risk assessment which provides the basis for the development of a remedial approach that analyzes the various components of the presumptive remedy.

The presumptive remedy for CERCLA landfills meeting the criteria specified by the USEPA's guidance is source containment (USEPA 1996). The decision whether the containment presumptive remedy applies to a specific military landfill is subject to a step-by-step analysis of site-specific conditions with respect to the USEPA guidance criteria. The decision framework for evaluating the applicability of the presumptive remedy is provided in Figure 5. Specific-site circumstances which dictate the appropriateness of this approach include the types of waste present, volume of landfill contents, land use plans, and hydrogeologic and safety

#### Highlight 4: Decision Framework



considerations. Within the decision framework, the effects of land use are considered first followed by a determination of whether the landfill contents meet the definition of municipal-type waste. Municipal wastes are defined to include household and commercial and industrial solid waste, with less quantities of hazardous waste. Military-specific waste which may pose unique safety risks are afforded special consideration.

Based on information presented in the SI report and summarized in Sections 2.0 and 3.0, and land use plans for the site, the containment presumptive remedy is an appropriate remedy for remediation of LF-024. Currently, PARC has no plans for the development of the property. In addition, restrictions on future use of the property will be enforced to prevent any adverse actions leading to the deterioration of the landfill cap, thereby ensuring source containment. Although the landfill is relatively small (approximately 1 acre in size), excavation and consolidation would not be preferred given the difficulties associated with the disposal of the waste. Excavation is impractical for several reasons. The excavation and incorporation of the waste within other onsite landfills is not an option since these landfills either have been closed or placement of the waste would impinge on existing wetlands. Excavation and removal of the waste to an offsite landfill also would not be beneficial from a cost perspective. Finally, the contents of the landfill meet the guidance definition for municipal-type waste, and includes a high proportion of nonhazardous C&D debris. The presence of military-type waste in LF-024 has not been documented, and was not observed during SI activities. Levels of contamination associated with the fill indicate a low level of risk commensurate with source containment.

## **7.2 Remedial Action Objectives**

Remedial action objectives are medium-specific goals for protecting human health and the environment, and provide the basis for selection of an appropriate remedial action. Results of the HRA indicate that there is no risk of adverse health effects from direct contact (either incidental ingestion or skin contact) with contaminated soil/fill. However, there is a potential health risk to construction workers from the inhalation of fugitive dust during site remediation operations which include excavation and earth-moving activities. A comparison of analytical results from soil/fill samples with New York State guidelines indicates the onsite soil/fill contamination is minimal. Manganese is the primary constituent driving the fugitive dust hazard index as discussed in the risk assessment (Section 3.1). On this basis, the following remedial action objective has been established:

- Prevent construction workers from inhaling contaminated fugitive dust resulting from earth-moving activities during site remediation and post-closure maintenance operations.

The HRA also indicates that there is a potential health risk if a groundwater well is installed on, or immediately downgradient of, the site and utilized for drinking water. At present, there are no drinking water wells on site. The potential risk is attributed primarily to the presence of manganese at elevated concentrations in groundwater, with antimony, barium, and vanadium contributing to a lesser degree to the hazard index. On this basis, the following remedial action objective has been established:

- Prevent human ingestion of contaminated groundwater on and immediately downgradient of the site.

In addition to the potential, chemically-related health-risks described above, the presence of exposed C&D debris which protrudes from the surface of the landfill poses a potential safety hazard. Consequently, the following remedial action objective has been established:

- Eliminate potential physical hazards to onsite workers and maintenance personnel.

### **7.3 Development of the Remedial Alternative**

The containment presumptive remedy consists of five remedial response actions which are evaluated separately with respect to LF-024. The five component parts of the presumptive remedy include:

- Landfill cap
- Source area groundwater control to contain plume
- Leachate collection and treatment
- Landfill gas collection and treatment
- Institutional controls to supplement engineering controls

According to USEPA guidance, response actions for individual sites are required to include only those components that are necessary, based on site-specific conditions. An evaluation of each of the remedial components is provided below.

A landfill cap is a necessary component of the remedial action for LF-024. It is required in conjunction with the removal of exposed surface C&D debris which presents a physical safety hazard and is a remedial action objective for this site. The landfill cap will serve to separate further the fill and debris from surface exposure. The cap will incorporate erosion control measures to reduce the effects of rain and wind; and will provide a growth medium for the long-term maintenance of the landfill cover.

Groundwater contamination at the site is limited to the presence of metals which were detected in turbid groundwater samples. Groundwater control and leachate collection are unnecessary components of the remediation since the dissolved contaminants, which form the greatest concern to groundwater ingestion, are readily absorbed by sediments and immobile in groundwater. Therefore the metals contamination would have an insignificant impact on the nearby Salmon River. Preventing the ingestion of groundwater at the site (a major remedial action objective) will be addressed by institutional controls to prohibit the local use of groundwater. Landfill gas collection and treatment is an unnecessary component of the remediation, since air monitoring results indicate that there is no appreciable landfill gas emissions.

Institutional controls are a necessary component for remediation at LF-024 and are required to: (1) restrict groundwater use and limit site development, (2) provide for the continued protection and maintenance of the landfill cap, and (3) provide notice of potential health risks associated with remediation and development of the site.

Specific alternatives for the two remedial components considered appropriate for LF-024 (i.e., landfill cap and institutional controls), are discussed below.

**Landfill Cap:** Three potential options for the landfill cap include: 1) a double barrier (RCRA-based) cap; 2) a single barrier (NYSDEC Part 360-based) cap and 3) native soil cover (i.e., naturally occurring). Individual components of these caps are described below. Each option was evaluated with respect to effectiveness (i.e., the ability to meet the remedial action objectives and to protect human health and the environment), implementability (both administrative and technical), and cost.

All three landfill caps are expected to be effective. Any of the caps, if properly designed and maintained, would prevent direct contact by humans with onsite soil/fill, gradually diminish leachate

generation and groundwater contamination, and reduce risks associated with physical hazards and the inhalation of fugitive dust.

The technical implementability (i.e., constructability) of the three caps is related to the components summarized below:

Double Barrier Cap includes a gas collection, clay layer, flexible membrane liner, sand drainage layer, filter fabric, soil layer for frost protection, topsoil, and vegetative cover.

Single Barrier Cap includes a gas collection layer, a low permeability layer (or flexible membrane liner), a soil layer for frost protection, topsoil, and vegetative cover.

Native Soil Cap includes a soil layer, topsoil, and vegetative cover.

Based on the components required, the double barrier cap and single barrier cap would be more difficult to construct, whereas the native soil cover would be comparatively easier to construct. Both barrier caps would be particularly difficult to construct on LF-024 because a portion of the surface is heavily forested. Complete clearing and grubbing of the site prior to cap construction is undesirable, since the significant vegetation protects the surface against erosion.

Cap costs depend largely on the number of components and total cap thickness. A native soil cover is the least costly landfill cap. An order of magnitude estimate for the construction of a 12-inch native soil cover is \$59,000 for this 1-acre site. The construction cost for a single barrier cap (without a gas collection layer) is estimated to be over four times greater than the native soil cover. The construction cost of the double barrier cap is estimated to be significantly (approximately 20 to 40 percent) greater than the single barrier cap. Operations and maintenance (O&M) costs for the double barrier cap are expected to be the highest. O&M costs for a single barrier cap are expected to be lower than the double barrier, but significantly higher than for a native soil cover.

Institutional Controls: Appropriate institutional controls to be implemented for LF-024 include restrictions that limit site development and protect the integrity of the cap. In addition, institutional controls

are necessary to address remedial action objectives including water use restrictions that prohibit the use of groundwater as a potable water source on and immediately downgradient of the site. These institutional controls will be implemented by PARC which is responsible for management of the property.

Implementation of these remedial measures will require continued groundwater monitoring, including five-year site reviews to evaluate the effectiveness of the remedial measures. These remedial measures and the rationale for their selection are supported by USEPA guidance.

## **8.0 COMPARATIVE ANALYSIS OF ALTERNATIVES SUMMARY**

Nine criteria are utilized for the evaluation of an alternative as specified in the NCP and discussed in detail in the RI/FS guidance (USEPA 1988). These nine criteria are listed and described in Table 6. The evaluation of the recommended remedial alternative at LF-024 with respect to these nine criteria is presented below.

Overall Protection of Human Health and the Environment - The remedial alternative selected for LF-024 will reduce human health risk to acceptable levels. The construction of a landfill cap, in conjunction with the removal/realignment of protruding construction debris, will eliminate physical hazards while protecting onsite industrial workers from the possible inhalation of fugitive dust. In addition, the landfill cap effectively will reduce long-term leaching impacts on groundwater quality, reducing risks associated with groundwater ingestion.

The implementation of institutional controls (including deed and lease provisions to limit site development, protect the integrity of the cap, and prohibit groundwater use) would ensure continued protection. Notice of potential inhalation risks and, health and safety measures required during earth moving activities, will further protect site construction workers. Regular inspection of the cap will ensure that the cap remains effective in meeting the remedial objectives. The groundwater monitoring program will assist in evaluating the adequacy of controls to protect downgradient receptors.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) - In general, exceedances of groundwater ARARs (see Section 2.4.4) are minimal and are believed to be due to the high

**TABLE 6**  
**CONSTRUCTION SPOILS LANDFILL (LF-024)**  
**EVALUATION CRITERIA**

Criteria No.	Description
1	<u>Overall Protection of Human Health and the Environment</u> - Protectiveness is the primary requirement of remedial action at hazardous waste sites. Evaluation of this criterion involves an assessment of how an alternative achieves protection over time and how site risks are reduced.
2	<u>Compliance with ARARs</u> - Compliance with ARARs includes compliance with chemical-specific, action-specific, and location-specific requirements.
3	<u>Long-term Effectiveness and Permanence</u> - This criterion requires an assessment of: (a) the magnitude of residual risk after remediation; (b) the adequacy of controls to meet required performance specifications, both initially and into the future; and (c) the reliability of controls from an operational standpoint.
4	<u>Reduction of Toxicity, Mobility, or Volume (TMV)</u> - This criterion addresses the statutory preference, expressed in the Superfund Amendments and Reauthorization Act (SARA), for remedies that employ treatment as a principal element. It includes an assessment of the magnitude, significance, and irreversibility of treatment, as well as an evaluation of the type and quantity of residuals remaining after treatment.
5	<u>Short-term Effectiveness</u> - This criterion includes the short-term impacts of an alternative (i.e., during implementation) upon the surrounding community, onsite workers, and the environment. It also addresses the time required for the alternative to satisfy remedial action objectives.
6	<u>Implementability</u> - Implementability includes many of the practical aspects associated with implementation of the remedial alternative, such as the ability to construct and operate remedial technologies, the reliability of the technologies, ease of undertaking additional remedial actions if necessary, ability to monitor the alternative's effectiveness, availability of required materials and services, permit requirements, and need to coordinate with other agencies.
7	<u>Cost</u> - This quantitative evaluation criterion includes the capital and operation/maintenance costs associated with each alternative, as well as its total present worth.
8	<u>State Acceptance</u> - This criterion evaluates the technical and administrative issues and concerns the State may have regarding an alternative.
9	<u>Community Acceptance</u> - This criterion evaluates the issues and concerns the public may have regarding an alternative.

turbidity of the groundwater samples. Human health can be protected adequately by preventing groundwater use on and immediately downgradient of the site until such time as groundwater quality is confirmed or leaching effects are sufficiently diminished. Construction of the cap with proper drainage control and continued monitoring will protect against a release of contaminants exceeding ARARs in near-surface soil and fill. It is anticipated that acceptable levels of metals will be obtained in groundwater within the first year of cap construction.

NYSDEC regulations, namely 6NYCRR Part 360 Solid Waste Management Facilities (effective January 14, 1995), are the most important action-specific ARARs for LF-024. They regulate closure and final design for landfills. The recommended remedial alternative is compliant with these regulations and complies with all action- and location-specific ARARs.

**Long-Term Effectiveness and Performance** - The remedial action objectives established for LF-024 will be addressed by the remedy. Health risk associated with the future inhalation of fugitive dust and physical hazards related to protruding debris will be eliminated by surface contouring and capping. Risks associated with the ingestion of groundwater will be controlled by implementing institutional controls on groundwater use. In addition, the gradual reduction in groundwater contamination will be achieved by diminished landfill leaching over time and, ultimately, by the natural attenuation of the groundwater contaminants.

The site monitoring program and five-year site reviews represent additional components that will be used to evaluate the effectiveness of remedial measures and, consequently, to protect human health and the environment.

**Reduction of Toxicity, Mobility, and Volume (TMV)** - A treatment technology to reduce TMV is not included in the alternative. Groundwater contamination at the site is limited to metals which are relatively immobile in groundwater due to the high affinity of dissolved metals for solid surfaces. Consequently the metals contamination would have an insignificant impact on the Salmon River. Health risks associated with the ingestion of metals (primarily manganese) will be controlled by limiting infiltration and landfill leaching, and by restrictions on groundwater use on and immediately downgradient of the landfill.

Short-Term Effectiveness - Construction of the alternative will require some earth-work for site grading. During the construction period including intrusive activities during site development, short-term impacts to workers and the environment is possible via inhalation of fugitive dust. However, these impacts can be mitigated easily by instituting conventional health and safety measures. It is estimated that construction/implementation of remedial measures will require less than one year. The remedial action objectives will be met upon completion of construction and the incorporation of deed restrictions on the use of groundwater.

Implementability - The technologies proposed for the alternative are conventional and are expected to be constructed with little, if any, difficulty. Cap construction and grading in wooded areas is expected to present the greatest difficulty during construction. Materials required for construction (i.e., topsoil and common borrow) are available.

Cost - The capital cost includes the cost of cap construction and implementation of deed restrictions. The capital cost estimate for this alternative is \$59,000. O&M costs include annual monitoring, and cap inspection and repair. The estimated annual O&M cost is \$6,000. The present worth cost of the annual O&M cost, based on a 30-year period at an interest rate of 6 percent, is \$77,000 (Table 7).

State Acceptance - The NYSDEC has provided input during the preparation of the SI and HRA and concurs with the remedial alternative.

Community Acceptance - Community acceptance of the recommended alternative has been obtained. Public comments solicited from the community during the public comment period and responses to these comments are provided in Appendices D and E.

In accordance with the NCP, the recommended alternative is protective of human health and the environment, will comply with ARARs and is cost effective. The recommended alternative is not a permanent solution since it does not include treatment. However, it follows the NCP and USEPA guidance which specifies containment as the presumptive remedy for landfills.

TABLE 7

## COST ESTIMATE SUMMARY FOR THE SELECTED REMEDY

	UNIT	QUANTITY	UNIT COST	TOTAL COST
<b>CAPITAL COSTS:</b>				
1. VEGETATIVE COVER	ACRE	1.0	\$ 2,300.00	\$ 2,300.00
2. TOP SOIL INCLUDING SPREADING	ACRE	1.0	18,000.00	18,000.00
3. SOIL BORROW LAYER INCLUDING COMPACTION	CY	890	21.50	19,135.00
4. REGRADING OF SOIL	CY	890	22.50	20,025.00
				\$59,460.00
<b>OPERATION AND MAINTENANCE COST:</b>				
1. LANDFILL CAP	HR	10	\$ 50.00	\$ 500.00
INSPECTION OF CAP	NO/YR	7	75.00	525.00
MAINTENANCE (CUT GRASS)	NO	2	500.00	1,000.00
REPAIR (REPLACEMENT OF TOPSOIL AND RESEEDING)				
Total Yearly Cost For Cap Inspection, Maintenance And Repair				\$2,025.00
2. GROUNDWATER MONITORING				
SAMPLING - QUARTERLY				
4 GROUNDWATER + 2 QA/QC SAMPLES	HR	32	\$ 50.00	\$ 1,600.00
2 WORKERS x 15 DAYS x 8 HRS/DAY				
ANALYTICAL TESTING OF SAMPLES (Metals Only)	NO	24	\$ 65.00	\$ 1,560.00
6 SAMPLES 4 TIMES A YEAR				
AUDITING OF SAMPLING RESULTS AND PREPARATION OF A REPORT - TOTAL OF 4 HRS/ROUND x 4 EVENTS/YEAR	HR	16	\$ 60.00	\$ 960.00
Total Cost of Groundwater Monitoring Per Year on a Quarterly Basis for the First 5 years				\$ 4,120.00
Total Cost of Groundwater Monitoring on an Annual Basis for Year 6 to Year 30				\$1,030.00
Present worth of O&M for 30 years at 6% interest				\$77,125.00
TOTAL PRESENT WORTH OF ALTERNATIVE				\$136,585.00

## 9.0 THE SELECTED REMEDY

Plattsburgh AFB has selected for remediation of LF-024 the presumptive remedy designated by the USEPA for military landfills consisting of containment with a native soil cap and institutional controls. USEPA approval and NYSDEC concurrence are expected. The selected remedy is protective of human health and the environment, and is cost effective. The alternative includes the following elements:

Native Soil Cap - A 12-inch native soil cap consisting of naturally occurring soils with a 9-inch layer of inorganic soil, a 3-inch topsoil layer, and a vegetative cover, will be established at LF-024 as a supplement to the existing soil cap to ensure fugitive dust control. Soil for capping will be chemically analyzed before it is utilized at LF-024. Large trees (i.e., those over 6 inches in diameter) may be left in place during soil cover establishment provided the trees do not interfere with the attainment of the remedial goal or the maintenance of positive surface water run-off and erosion control. Soil layers will be compacted to reduce permeability and the site cap will be constructed to control surface water run-off and control erosion. The soil cover will be inspected on an annual basis with repairs/replacement of the cap as required.

Institutional Controls - Restrictions will be imposed to limit development of any structure on the landfill site which would adversely effect human health and safety. Deed and lease agreements will include appropriate restrictions to prevent any adverse action leading to the deterioration of the landfill cap to include prohibition from installing any wells for drinking water or any other purpose which could result in the use of the underlying groundwater and the prohibition against any excavation of the landfill cap without prior approval of New York State Department of Environmental Conservation. In addition, notice is to be provided in deed and lease agreements to warn of potential short-term health risks from inhalation of dust during site construction activities. Area groundwater use will be restricted as shown on Figure 3 and includes the area encompassing the landfill and groundwater pathway between the landfill and the Salmon River.

Monitoring - Long-term groundwater monitoring will be performed and analyzed to evaluate groundwater quality during the post-closure period (30 years). Groundwater samples will be collected using a low-flow pump from three shallow downgradient monitoring wells, which will be installed near the respective locations of the SI well points (See Figure A-5 - Appendix A). An additional well will be located 100 feet farther downgradient, between the landfill and the Salmon River to serve as a sentry well to monitor

plume containment. A groundwater sample also will be collected from the existing upgradient monitoring well to provide a background comparison. Samples will be collected following well purging and analyzed for total metals (i.e., target analyte list inorganics). Sampling will be conducted semi-annually for the first five-years after the cap is constructed, and annually thereafter. Monitoring results will be reviewed by the USAF, USEPA, and NYSDEC. Detailed instructions for the conduct of the groundwater monitoring program will be included in the site's Operation and Maintenance Plan and implemented as part of the Record of Decision (ROD).

Five-Year Site Review - Every five years, data generated by the monitoring program will be reviewed to evaluate the effectiveness of remedial measures. Modifications to the extent of site monitoring efforts will be recommended at that time.

## **10.0 STATUTORY DETERMINATIONS**

The remedial action selected for implementation at LF-024 is consistent with CERCLA and, to the extent practicable, the NCP. The selected remedy is protective of human health and the environment, attains ARARs, and is cost effective. The selected remedy uses permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable for this site. However, it does not satisfy the statutory preference for treatment which permanently and significantly reduces the mobility, toxicity, or volume of hazardous substances as a principal element.

### **10.1 The Selected Remedy is Protective of Human Health and the Environment**

The remedy at LF-024 will permanently reduce the potential future risk posed to human health and the environment through engineering controls (i.e., construction of a native soil cap), as well as institutional controls (i.e., restrictions on the future development of the site and the use of groundwater as a potable supply source). The construction of the cap, as well as its inspection every five years and any required repair, will effectively eliminate the risks posed by the inhalation of fugitive dust and physical hazards associated with protruding construction debris.

The site cap will be constructed so that soil layers are compacted to reduce permeability, and to control surface water runoff and erosion. These features will reduce offsite migration of contaminants by surface runoff and groundwater. Finally, implementation of the selected remedy will not pose unacceptable short-term risks that cannot be mitigated easily by instituting conventional health and safety measures. In addition, no adverse environmental impacts are expected from implementation of the remedy.

## **10.2 The Selected Remedy Attains ARARs**

The remedy will comply with all applicable or relevant and appropriate chemical-, action-, and location-specific requirements (ARARs). Compliance with the chemical-specific ARARs will be achieved gradually through the process of natural degradation and attenuation. Federal and state ARARs are presented below.

### Chemical-specific

- *RCRA Hazardous Waste Toxicity Characteristic Limit, 40 CFR 261* - Establishes standards for soil.
- *6 NYCRR 700-705 Water Quality Regulations* - Establishes standards for groundwater.
- *USEPA Safe Drinking Water Act, National Primary and Secondary Drinking Water Regulations (40 CFR Parts 141 and 143)* - Establishes standards for potable sources.

### Action-specific

- *NYSDEC Solid Waste Management Facility Rules 6 NYCRR Part 360 Effective January 14, 1995* - Establishes criteria for solid waste landfills and specifies closure and post-closure procedures
- *NYSDEC Division of Air Resources Regulation (6NYCRR Parts 200-202, 257)* - Establishes regulations applicable to particulate matter (e.g., fugitive dusts) entrained in air during clearing, grading, and cover system construction activities.

- *Clean Air Act (40 CFR Part 50)* - Establishes regulations applicable to particulate matter (e.g., fugitive dusts) entrained in air during clearing, grading, and cover system construction activities.
- *Occupational Safety and Health Administration Regulations (29 CFR Parts 1904, 1910, and 1916)* - Establishes regulations applicable to all work conducted on site.

#### Location-specific

- *National Environmental Policy Act of 1969 (NEPA) (40 CFR Part 1501)* - The Department of the Air Force revised their protocols to be in compliance with NEPA. The revision provides policy and guidance for consideration of environmental matters in the Air Force decision-making process.
- *Section 404 of the Clean Water Act and 40 CFR 230* - Protects waters of the United States, including aquatic and wetland habitats.
- *New York State Use and Protection of Waters (6 NYCRR 608)* - Protects streams including Class A, B, and C(T) from disturbances or adverse impacts through a permitting process.
- *New York State Water Quality Classifications (6 NYCRR 701-703)* - Classifies and protects groundwater, streams, and other water bodies.

#### **10.3 Other Criteria, Advisories, or Guidance to be Considered for this Remedial Action**

NYSDEC soil TBCs (TAGM #4046, 1994) will not be met since treatment is not included in the alternative. However, the NYSDEC concurred with the recommended alternative since TBCs are guidance rather than promulgated standards and the remedy adequately protects human health and the environment. In addition, surface water and groundwater results were compared with NYSDEC ambient water quality guidance values (TOGS 1.1.1, 1993). Overall, contaminant levels in groundwater are considered to be

minimal; therefore, human health can be protected by prohibiting its use on, and immediately downgradient of the site. Construction of a cap with proper drainage controls and continued monitoring will protect surface water and sediment quality.

#### **10.4 Cost-Effectiveness**

The selected remedy is cost-effective, in that, it provides an effective remedy at a significantly lower cost than the other capping alternatives evaluated. In selecting this remedy, the overall effectiveness of each capping alternative was evaluated by assessing three relevant criteria: ability to protect human health and the environment, implementability, and cost. Including the cap construction and implementation of deed restriction, the capital cost is estimated to be \$59,000. O&M costs include groundwater monitoring, and cap inspection and repair. The estimated annual O&M cost is \$6,000. The present worth cost of the annual O&M cost, based on a 30-year period at an interest rate of 6 percent, is \$77,000.

#### **10.5 Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable**

The selected remedy uses permanent solutions and alternative treatment technologies to the extent practicable for this site. The remedy will eliminate the risks associated with inhalation of fugitive dust and groundwater. Monitoring and five-year site reviews will be used to measure its long-term effectiveness in protecting human health and the environment. However, the remedy will not reduce the toxicity, mobility, and volume of contaminated site media. Regular inspection of the cap will ensure that the cap remains effective in meeting the remedial objective.

#### **10.6 The Selected Remedy Does Not Satisfy the Preference for Treatment Which Permanently and Significantly Reduces the Toxicity, Mobility, or Volume of the Hazardous Substances as a Principal Element**

Because treatment of the principal threats at the site was found to be impracticable, this remedy does not satisfy the statutory preference for treatment as a principal element of the remedy. Treatment technologies were considered during the identification, development, and initial screening of alternatives, but were

considered to be infeasible for the LF-024 landfill site. The fact that there are no definable onsite hot spots that represent the major sources of contamination preclude a remedy in which contaminants could be excavated and treated effectively.

## **11.0 DOCUMENTATION OF NO SIGNIFICANT CHANGES**

Plattsburgh AFB presented a Proposed Plan for the preferred alternative for remediation of LF-024 in November 1996. The preferred alternative includes:

- Clearing the site
- Establishing a continuous soil cover
- Managing surface water runoff to minimize erosion of the cover and minimize maintenance requirements
- Establishing vegetation to minimize erosion of the final cover and enhance evapotranspiration
- Placing institutional controls in property deed and lease agreements to prevent adverse actions leading to deterioration of the cap and prohibitions on local use of groundwater.
- Developing a post-closure plan development to monitor, maintain, and inspect the site
- Monitor groundwater
- Conducting five-year reviews

The chosen remedial action does not differ from the preferred alternative presented in the Proposed Plan.

## **12.0 STATE ROLE**

The NYSDEC, on behalf of the State of New York, has reviewed the various alternatives and has indicated its support for the selected remedy. It also has reviewed the SI and Proposed Plan to determine if the selected remedy complies with applicable or relevant and appropriate New York State environmental laws and regulations. The NYSDEC concurs with the selected remedy for the LF-024. A copy of the declaration of concurrence is attached as Appendix C.

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## GLOSSARY

*Administrative Record:* A file established and maintained in compliance with Section 113(K) of CERCLA, consisting of information upon which the lead agency bases its final decisions on the selection of remedial method(s) for a Superfund site. The Administrative Record is available to the public.

*Applicable or Relevant and Appropriate Requirements (ARARs):* ARARs include any state or federal statute or regulation that pertains to protection of public health and the environment in addressing certain site conditions or using a particular remedial technology at a Superfund site. A state law to preserve wetland areas is an example of an ARAR. USEPA must consider whether a remedial alternative meets ARARs as part of the process for selecting a remedial alternative for a Superfund site.

*Aquifer:* A water-bearing formation or group of formations.

*Carcinogenic:* Exposure to a particular level of a potential carcinogen may produce cancer.

*Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA):* A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The act requires federal agencies to investigate and remediate abandoned or uncontrolled hazardous waste sites.

*C&D Debris:* Building waste resulting from construction and demolition activities.

*Ecological Receptors:* Fauna or flora in a given area that could be affected by contaminants in surface soils, surface water, and/or sediment.

*Groundwater:* Water found beneath the earth's surface that fills pores within materials such as sand, soil, gravel, and cracks in bedrock, and often serves as a source of drinking water.

*HDPE:* High Density Polyethene, plastic material often used to cover municipal and hazardous waste landfills.

*Inorganic Compounds:* A class of naturally occurring compounds that includes metals, cyanide, nitrates, sulfates, chlorides, carbonate, bicarbonate, and other oxide complexes.

*Installation Restoration Program (IRP):* The U.S. Air Force subcomponent of the Defense Environment Restoration Program (DERP) that specifically deals with investigating and remediating sites associated with suspected releases of toxic and hazardous materials from past activities. The DERP was established to clean up hazardous waste disposal and spill sites at Department of Defense facilities nation-wide.

*Landfill Cap:* A cover system for the landfill.

*Leachate:* Solution produced by percolating liquid in contact with contaminated matter.

*NCP: National Oil and Hazardous Substance Contingency Plan.* A federal law governing hazardous substances (40 CFR Part 300, 1990).

*National Priorities List:* USEPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program.

*Noncarcinogenic:* Exposure to a particular level of a potential noncarcinogen may produce adverse health effects.

*Organic Compounds:* Any chemical compounds built on the carbon atom, (i.e., methane, propane, etc.)

*PAHs:* Polynuclear Aromatic Hydrocarbons, often associated with combustion process and distillation tars.

*PCBs:* Polychlorinated Biphenyls, formerly used as a lubricant and transformer coolant.

*ppb:* Parts per billion.

*ppm:* Parts per million.

*RCRA:* Resource Conservation and Recovery Act.

*Record of Decision (ROD):* A public document that explains the remedial alternative to be used at a National Priorities List (NPL) site. The ROD is based on information and technical analysis generated during the Remedial Investigation, and on consideration of the public comments and community concerns received on the Proposed Plan. The ROD includes a Responsiveness Summary of public comments.

*Remedial Action:* A long-term action that stops or substantially reduces a release or threat of a release of hazardous substances that is serious but not an immediate threat to human health or the environment.

*Remedial Alternatives:* Options evaluated to address the source and/or migration of contaminants to meet health-based or ecology-based remediation goals.

*Remedial Investigation (RI):* The Remedial Investigation determines the nature, extent, and composition of contamination at a hazardous waste site, and directs the types of remedial options that are developed in the Feasibility Study.

*SACM:* Superfund Accelerated Cleanup Model.

*SARA:* The Superfund Amendments and Reauthorization Act of 1986 amended the 1980 CERCLA. The amendments that re-authorized the federal Superfund which had expired in 1985 and established the preference for remedies that permanently reduce toxicity, volume, or mobility of hazardous constituents.

*Sediments:* Soil material found in water.

*Semivolatile Organic Compounds:* (SVOCs) Organic constituents which are generally insoluble in water and are not readily transported in groundwater.

*Source:* Area at a hazardous waste site from which contamination originates.

*Superfund:* The trust fund, created by CERCLA out of special taxes, used to investigate and clean up abandoned or uncontrolled hazardous waste sites. Out of this fund USEPA either: (1) pays for site remediation when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work or (2) takes legal action to force parties responsible for site contamination to clean up the site or pay back the federal government for the cost of the remediation. Federal facilities are not eligible for Superfund monies.

*TBC:* Non-promulgated standards "To Be Considered" for consideration as ARARs.

*Volatile Organic Compounds:* (VOCs) Organic constituents which tend to volatilize or to change from a liquid to a gas form when exposed to the atmosphere. Many VOC's are readily transported in groundwater.

**APPENDIX A**

**CHEMICALS DETECTED  
IN ENVIRONMENTAL MEDIA  
AT LF-024**

# APPENDIX A

## CHEMICALS DETECTED IN ENVIRONMENTAL MEDIA AT LF-024

<b>TABLE/FIGURE NUMBER</b>	<b>TITLE</b>
TABLE A-1	CONSTRUCTION SPOILS LANDFILL (LF-024) SITE INVESTIGATION - SUMMARY OF ANALYTES DETECTED IN SEDIMENT SAMPLES
FIGURE A-1	CONSTRUCTION SPOILS LANDFILL (LF-024) SITE INVESTIGATION - CHEMICALS DETECTED IN SURFACE WATER AND SEDIMENT SAMPLES
TABLE A-2	CONSTRUCTION SPOILS LANDFILL (LF-024) SITE INVESTIGATION - SUMMARY OF ANALYTES DETECTED IN NEAR SURFACE SOIL
FIGURE A-2	CONSTRUCTION SPOILS LANDFILL (LF-024) SITE INVESTIGATION - CHEMICALS DETECTED IN NEAR SURFACE SOIL SAMPLES
TABLE A-3	CONSTRUCTION SPOILS LANDFILL (LF-024) SITE INVESTIGATION - SUMMARY OF ANALYTES DETECTED IN FILL SAMPLES TAKEN DURING TEST TRENCHING
FIGURE A-3	CONSTRUCTION SPOILS LANDFILL (LF-024) SITE INVESTIGATION - CHEMICALS DETECTED IN FILL SAMPLES
TABLE A-4	CONSTRUCTION SPOILS LANDFILL (LF-024) SITE INVESTIGATION - SUMMARY OF ANALYTES DETECTED IN SUBSURFACE SOIL SAMPLES
FIGURE A-4	CONSTRUCTION SPOILS LANDFILL (LF-024) SITE INVESTIGATION - CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
TABLE A-5	CONSTRUCTION SPOILS LANDFILL (LF-024) SITE INVESTIGATION - SUMMARY OF ANALYTES DETECTED IN GROUNDWATER
FIGURE A-5	CONSTRUCTION SPOILS LANDFILL (LF-024) SITE INVESTIGATION - CHEMICALS DETECTED IN GROUNDWATER

ANALYTE	TBC Values*	LEVEL IV		
		FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION
Methylene Chloride	100	2 / 4	7	10
Acetone	200	1 / 4	300	300
2 Butanone	300	2 / 4	22	98
Diethylphthalate	7,100	1 / 4	15	15
Phenanthrene	50,000	1 / 4	10	10
Di-n-butylphthalate	8,100	4 / 4	39	5300
Fluoranthene	50,000	2 / 4	10	13
Pyrene	50,000	2 / 4	6	6
Butylbenzylphthalate	50,000	2 / 4	13	15
bis(2-Ethylhexyl)phthalate	50,000	2 / 4	32	43
Benzo(a)pyrene	61	2 / 4	67	130
Naphthalene	13,000	1 / 4	7	7
2-Methylnaphthalene	36,400	1 / 4	2	2

\* Unless otherwise noted, To Be Considered (TBC) values are NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM HWR-94-4046, January 1994.

Due to limited areal extent and intermittent subaqueous nature, these samples were used in the HRA to evaluate risks associated with soil.

TABLE A-1 (cont'd)

**CONSTRUCTION SPOILS LANDFILL(LF-024) - SITE INVESTIGATION  
SUMMARY OF ANALYTES DETECTED IN THE SEDIMENT (SOIL) SAMPLES**

ANALYTE	TBC Values*	LEVEL IV		
		FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION
Aluminum	8,510 (SB)	4 / 4	2450	3490
Antimony	12.6 (SB)	2 / 4	15.3	20.5
Arsenic	7.5	1 / 4	3.5	3.5
Barium	300	4 / 4	25.1	32.1
Beryllium	0.74 (SB)	1 / 4	0.7	0.7
Calcium	30,200 (SB)	4 / 4	2390	3220
Chromium	19.5 (SB)	4 / 4	3.9	6.4
Cobalt	30	4 / 4	1.6	5.2
Copper	44.1 (SB)	3 / 4	1.4	5.8
Iron	36,700 (SB)	4 / 4	6760	15600
Lead	79.4 (SB)	4 / 4	4.6	11.5
Magnesium	3,340 (SB)	4 / 4	679	1090
Manganese	474 (SB)	4 / 4	189	542
Mercury	0.1	1 / 4	0.18	0.18
Nickel	13	1 / 4	8.5	8.5
Potassium	929 (SB)	4 / 4	363	588
Vanadium	150	4 / 4	10.5	12.4
Zinc	63.4 (SB)	4 / 4	16.1	39.1

All results reported in mg/kg.

\* - Unless otherwise noted, To Be Considered (TBC) values are NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM HWR-94-4046, January 1994.

SB - Site background values for metals were used when less stringent than the regulatory value. Site Background was based on a basewide background study (URS 1995).

**Note**

Due to limited areal extent and intermittent subaqueous nature, these samples were used in the HRA to evaluate risks associated with soil.

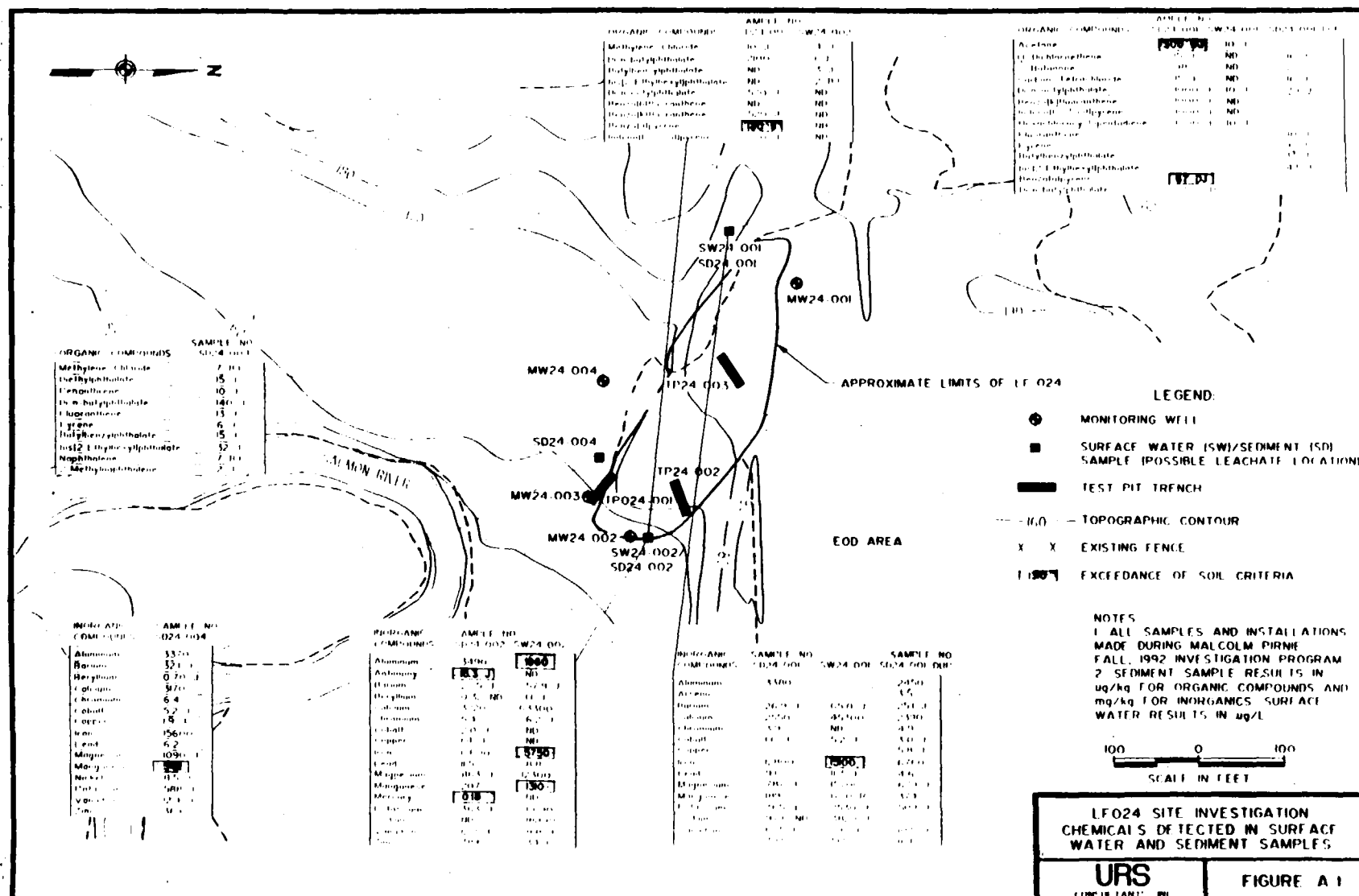


TABLE A-2

**CONSTRUCTION SPOILS LANDFILL(LF-024) - SITE INVESTIGATION  
SUMMARY OF ANALYTES DETECTED IN NEAR SURFACE SOIL**

ANALYTE	TBC Values*	LEVEL III		
		FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION
<b>Organic Compounds:</b>				
Acetone	200	2 / 3	2	6
bis(2-Ethylhexyl)phthalate	50,000	3 / 3	21	42
<b>Inorganic Compounds:</b>				
Aluminum	8,510 (SB)	3 / 3	4715	6752
Barium	300	3 / 3	41	120
Calcium	30,200 (SB)	3 / 3	1948	2467
Chromium	19.5 (SB)	3 / 3	7.9	10.7
Iron	36,200 (SB)	3 / 3	13200	15414
Magnesium	3,340 (SB)	3 / 3	1141	1853
Manganese	474 (SB)	3 / 3	307	2481 *
Mercury	0.1	1 / 1	0.01	0.01
Nickel	13	1 / 3	28 *	28 *
Potassium	929 (SB)	1 / 3	1160 *	1160 *
Vanadium	150	3 / 3	14.3	24.2
Zinc	63.4 (SB)	3 / 3	8.8	13.7

All results reported in µg/kg for organic analytes and in mg/kg for inorganic analytes

ND - Not Detected

SB - Soil background value Based on basewide background study (URS 1995)

**Notes**

- \* - Unless otherwise noted, To Be Considered (TBC) values are NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM HWR-94-4046, January 1994. Site Background (SB) values for metals were used when less stringent than the regulatory value. Site Background was based on a basewide background study (URS 1995).
- \* - Exceeds TBC values

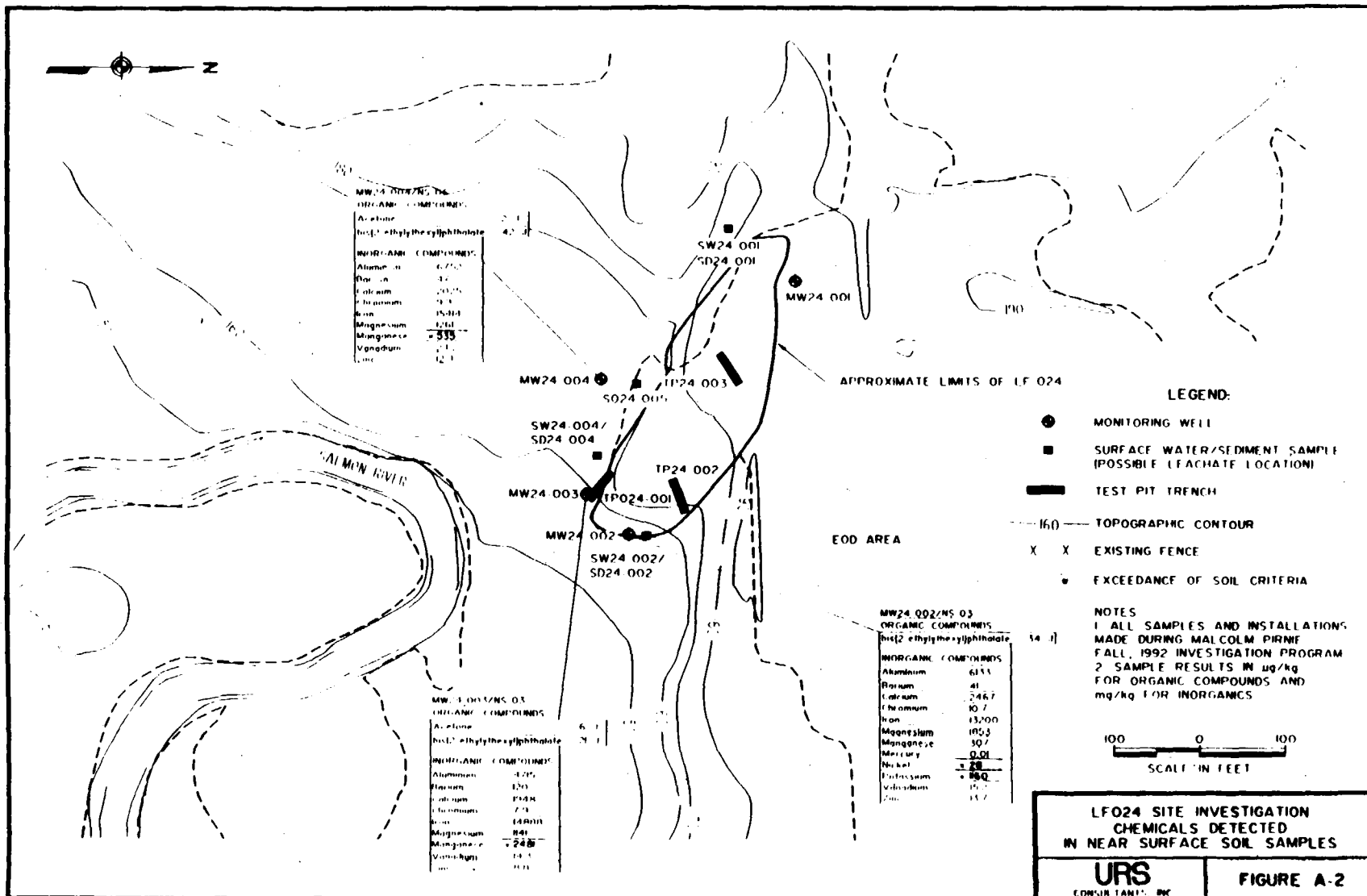


TABLE A-3

**CONSTRUCTION SPOILS LANDFILL(LF-024) - SITE INVESTIGATION  
SUMMARY OF ANALYTES DETECTED IN FILL SAMPLES TAKEN DURING TEST TRENCHING**

ANALYTE	TBC Values*	LEVEL III			LEVEL IV		
		FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION
Acetone	200	1 / 6	5	5	0 / 2	ND	ND
Benzoic Acid	2,700	3 / 6	16	30	0 / 1	ND	ND
2-Methylnaphthalene	36,400	0 / 6	ND	ND	1 / 1	1	1
Acenaphthylene	91,000	1 / 6	17	17	0 / 1	ND	ND
Fluorene	50,000	1 / 6	26	26	0 / 1	ND	ND
4-Nitroaniline	--	1 / 6	57	57	0 / 1	ND	ND
Phenanthrene	50,000	2 / 6	22	55	1 / 2	2	2
Anthracene	50,000	1 / 6	28	28	0 / 1	ND	ND
Di-n-butylphthalate	8,100	1 / 6	18	18	0 / 1	ND	ND
Fluoranthene	50,000	2 / 6	34	100	0 / 1	ND	ND
Pyrene	50,000	2 / 6	41	97	1 / 2	2	2
Benzo(a)anthracene	224	2 / 6	20	58	0 / 1	ND	ND
Chrysene	400	2 / 6	31	80	0 / 1	ND	ND
bis(2-Ethylhexyl)phthalate	50,000	4 / 6	96	150	0 / 2	ND	ND
Benzo(b)fluoranthene	1,100	2 / 6	29	76	0 / 1	ND	ND
Benzo(k)fluoranthene	1,100	2 / 6	22	78	0 / 1	ND	ND
Benzo(a)pyrene	61	2 / 6	24	74	0 / 1	ND	ND
Indeno(1,2,3-cd)pyrene	3,200	2 / 6	19	46	0 / 1	ND	ND
Benzo(g,h,i)perylene	50,000	2 / 6	27	50	0 / 1	ND	ND

All results reported in µg/kg

ND - Not Detected

Notes:

\* - Unless otherwise noted, To Be Considered (TBC) values are NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM

HWR-94-4046, January 1994 The listed TBC value is the most stringent regulatory value

\* - Exceeds TBC values

**CONSTRUCTION SPOILS LANDFILL(LF-024) - SITE INVESTIGATION**  
**SUMMARY OF ANALYTES DETECTED IN FILL SAMPLES TAKEN DURING TEST TRENCHING**

ANALYTE	TBC Values	LEVEL III			LEVEL IV		
		FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION
Aluminum	8510 (SB)	6 / 6	2847	6303	2 / 2	2530	4060
Antimony	126 (SB)	0 / 6	ND	ND	1 / 2	15.4 <sup>a</sup>	15.4 <sup>a</sup>
Arsenic	75	0 / 6	ND	ND	1 / 2	3	3
Barium	300	2 / 6	43	210	2 / 2	11.4	34.4
Calcium	30200 (SB)	6 / 6	1344	10213	2 / 2	1180	6620
Chromium	195 (SB)	6 / 6	3.6	9.9	2 / 2	4.3	7
Cobalt	30	0 / 6	ND	ND	2 / 2	1.9	5.2
Copper	441 (SB)	3 / 6	3.6	6	0 / 2	ND	ND
Iron	36700 (SB)	6 / 6	4670	27295	2 / 2	6730	21500
Lead	79.4 (SB)	1 / 6	33	33	2 / 2	2.3	2.8
Magnesium	3340 (SB)	5 / 6	752	5459 <sup>a</sup>	2 / 2	667	3870 <sup>a</sup>
Manganese	474 (SB)	5 / 6	50	5455 <sup>a</sup>	2 / 2	65.1	201
Mercury	0.1	0 / 6	ND	ND	1 / 2	0.17 <sup>a</sup>	0.17 <sup>a</sup>
Nickel	13	2 / 6	6.6	8.6	1 / 2	0.17	0.17
Potassium	929 (SB)	3 / 6	691	1043 <sup>a</sup>	1 / 2	5.7	5.7
Selenium	2	0 / 6	ND	ND	2 / 2	299 <sup>a</sup>	655 <sup>a</sup>
Thallium	ND (SB)	0 / 6	ND	ND	1 / 2	104 <sup>a</sup>	104 <sup>a</sup>
Vanadium	150	5 / 6	6.8	18.1	0 / 2	ND	ND
Zinc	63.4 (SB)	6 / 6	5.7	22	2 / 2	10.4	14
Solids, Total (%W/W)		NA	NA	NA	2 / 2	7.3	16.7

ND - Not Detected

NA - Not Analyzed.

SB - Soil background value

## Notes

\* Unless otherwise noted, To Be Considered (TBC) values are NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM

HWR-94-4046, January 1994 Site Background (SB) values for metals were used when less stringent than the regulatory value

**Site Background** was based on a basewide background study (URS 1995).

<sup>a</sup> - Exceeds TBC values



TABLE A-4

**CONSTRUCTION SPOILS LANDFILL(LF-024) - SITE INVESTIGATION  
SUMMARY OF ANALYTES DETECTED IN SUBSURFACE SOIL SAMPLES FROM BORINGS**

ANALYTE	TRC Values*	LEVEL III			LEVEL IV		
		FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION
Organic Compounds:							
Acetone	200	1 / 2	5	5	1 / 1	11	11
Di-n butylphthalate	8,100	2 / 2	9	14	0 / 1	ND	ND
Fluoranthene	50,000	1 / 2	16	16	0 / 1	ND	ND
Pyrene	50,000	1 / 2	16	16	0 / 1	ND	ND
bis(2 Ethylhexyl)phthalate	50,000	2 / 2	110	140	0 / 1	ND	ND
Inorganics (metals):							
Aluminum	8,510 (SB)	2 / 2	2723	7151	1 / 1	3090	3090
Barium	300	0 / 2	ND	ND	1 / 1	16.8	16.8
Calcium	30,200 (SB)	1 / 2	1228	1228	1 / 1	955	955
Chromium	19.5 (SB)	2 / 2	3.2	9.4	1 / 1	5.2	5.2
Cobalt	30.0	ND	ND	ND	1 / 1	1.6	1.6
Iron	36,700 (SB)	2 / 2	3813	10250	1 / 1	6540	6540
Lead	79.4 (SB)	ND	ND	ND	1 / 1	2.6	2.6
Magnesium	3,340 (SB)	ND	ND	ND	1 / 1	732	732
Manganese	474 (SB)	2 / 2	52	91	1 / 1	62.4	62.4
Nickel	13	ND	ND	ND	1 / 1	5.2	5.2
Potassium	929 (SB)	ND	ND	ND	1 / 1	424	424
Sodium	520 (SB)	ND	ND	ND	1 / 1	106	106
Vanadium	150	1 / 2	16.8	16.8	1 / 1	9.7	9.7
Zinc	63.4 (SB)	2 / 2	8.1	11.9	1 / 1	9.9	9.9

All organic results reported in µg/kg All inorganic results reported in mg/kg

ND - Not Detected

SB - Soil background value Based on basewide background study (URS 1995)

Notes

\* - Unless otherwise noted, To Be Considered (TBC) values are NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM

HWR 94 4046, January 1994 Site Background (SB) values for metals were used when less stringent than the regulatory value

Site Background was based on a basewide background study (URS 1995)

The listed TRC value for organics is the most stringent regulatory value

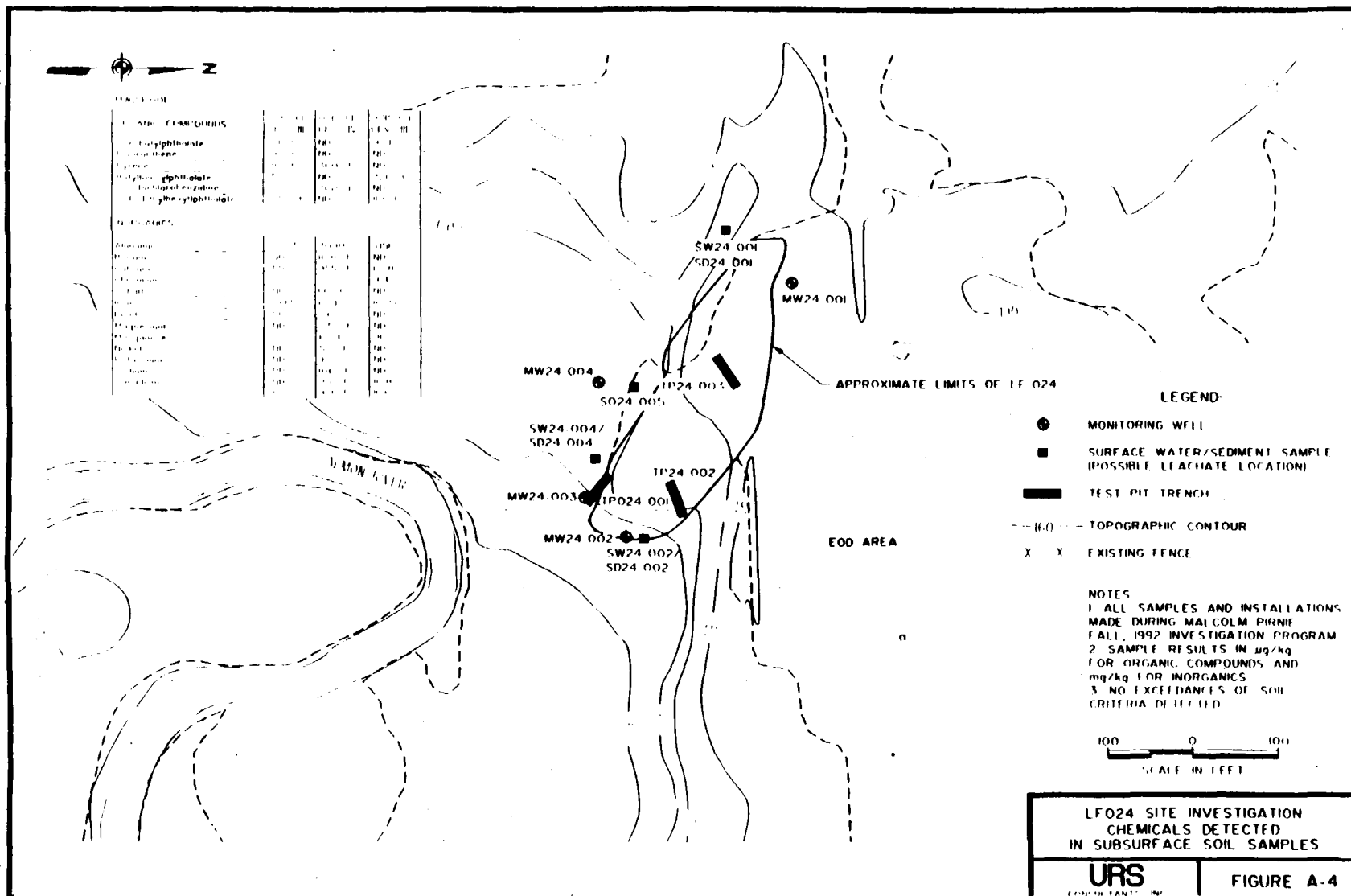


TABLE A-5

**CONSTRUCTION SPOILS LANDFILL(LF-024) - SITE INVESTIGATION  
SUMMARY OF ANALYTES DETECTED IN GROUNDWATER  
(UNFILTERED SAMPLES)**

ANALYTE	ARAR Values*	LEVEL IV		
		FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION
<b>Organic Compounds:</b>				
Methylene Chloride	5	4 / 4	3	3
2-Methylphenol	1	1 / 4	ND	2 *
bis(2-Ethylhexyl)phthalate	50	3 / 4	ND	1
<b>Inorganics (metals):</b>				
Aluminum	--	3 / 4	999	109000
Antimony	3	1 / 4	ND	87.6 *
Arsenic	25	1 / 4	ND	5.1
Barium	1,000	4 / 4	44	1790 *
Beryllium	3	3 / 4	ND	10.3 *
Calcium	--	4 / 4	16600	247000
Chromium	50	3 / 4	ND	338 *
Cobalt	--	3 / 4	ND	97.5
Copper	200	3 / 4	ND	70.9
Iron	300	4 / 4	1530 *	250000 *
Lead	15 **	3 / 4	ND	85.9 *
Magnesium	35,000	4 / 4	3990	65600 *
Manganese	300	4 / 4	37	15100 *
Mercury	2	1 / 4	ND	0.71
Nickel	--	3 / 4	ND	232
Potassium	--	4 / 4	1880	19500
Sodium	20,000	4 / 4	1700	31300 *
Thallium	4	2 / 4	ND	9.3 *
Vanadium	--	3 / 4	ND	189
Zinc	300	3 / 4	ND	2770 *
Cyanide	100	2 / 4	ND	80

All results reported in µg/l

**Notes**

\* - Unless otherwise noted, the ARAR values are NYSDEC Water Quality Standards and Guidance Values, TOGS 111, October 1993

The listed ARAR value is the most stringent regulatory value. Minimum concentrations and non-detects were reported from the upgradient well

\*\* - EPA Drinking Water Standards 40 CFR 141

ND - No Detection

\* - Exceeds ARAR value



## **APPENDIX B**

### **HUMAN HEALTH RISK - TOXICITY VALUES**

TABLE B-1

**CONSTRUCTION SPOILS LANDFILL(LF-024) - HEALTH RISK ASSESSMENT  
TOXICITY VALUES: POTENTIAL CARCINOGENIC EFFECTS**

Chemical	Slope Factor		Weight-of-Evidence	Tumor Site(s)		Reference - Date	
	Inhalation (mg/kg-day) <sup>-1</sup>	Oral (mg/kg-day) <sup>-1</sup>		Inhalation	Oral	Inhalation	Oral
2-Methylphenol	ND	ND	C	—	—	—	—
Benzo(a)pyrene	ND	7.30E+00	B2	—	Forestomach, larynx	—	IRIS-11/96
Benzo(a)anthracene	ND	7.30E+00*	B2	—	—	—	—
Chrysene	ND	7.30E+00*	B2	—	—	—	—
Benzo(b)fluoranthene	ND	7.30E+00*	B2	—	—	—	—
Benzo(k)fluoranthene	ND	7.30E+00*	B2	—	—	—	—
Indeno(1,2,3-cd)pyrene	ND	7.30E+00*	B2	—	—	—	—
Butylbenzylphthalate	ND	ND	—	—	Mononuclear cell leukemia	IRIS-12/94	IRIS-12/94
Methylene Chloride	1.65E-03	7.50E-03	B2	Liver	Liver	IRIS-11/96	IRIS-11/96
bis(2-Ethylhexyl)phthalate	1.40E-02	1.40E-02	B2	Liver, lung	Liver	ECAO-3/95	IRIS-11/96
Butylbenzylphthalate	ND	ND	C	—	Blood cells-mononuclear cell leukemia	—	IRIS-11/96
Arsenic	1.50E+01	1.50E+00	A	Respiratory system, lung and skin	Lung, skin	IRIS-11/96	IRIS-11/96
Beryllium	8.40E+00	4.30E+00	B2	Lung, bone	Lung, bone	IRIS-11/96	IRIS-11/96
Chromium (VI)	4.20E+01	ND	A	Lung	—	IRIS-11/96	—
Lead	ND	ND	B2	—	Kidney	—	IRIS-11/96

\* - Relative potency factors were applied to the slope factor for benzo(a)pyrene to evaluate cancer risks attributable to these PAHs (see text)

ECAO - Environmental Criteria and Assessment Office Date indicates date of correspondence

IRIS - Integrated Risk Information System Date indicates access to IRIS

HEAST - Health Effects Assessment Summary Tables Date indicates the fiscal year they were published

ND - Not Determined

TABLE B-2

**CONSTRUCTION SPOILS LANDFILL (LF-024) - HEALTH RISK ASSESSMENT  
TOXICITY VALUES: POTENTIAL NONCARCINOGENIC EFFECTS**

Chemical	Reference Dose (mg/kg-day)				Critical Effect(s)				Reference - Date			
	Subchronic		Chronic		Subchronic		Chronic		Subchronic		Chronic	
	Inhalation RfD	Oral RfD	Inhalation RfD	Oral RfD	Inhalation	Oral	Inhalation	Oral	Inhalation	Oral	Inhalation	Oral
Acenaphthylene	ND	ND	ND	ND	—	—	—	—	—	—	—	—
Acetone	ND	1.00E+00	ND	1.00E-01	—	Inc liver & kidney wt. nephrotoxicity	—	Inc liver & kidney wt. nephrotoxicity	—	HEAST-FY95	—	IRIS-11/96
Anthracene	ND	3.00E+00	ND	3.00E-01	—	No observed effects	—	No observed effects	—	HEAST-FY95	—	IRIS-11/96
Benzoic Acid	ND	4.00E+00	ND	4.00E+00	—	No observed effects	—	No observed effects	—	HEAST-FY95	—	IRIS-11/96
Benzo(a)anthracene	ND	ND	ND	ND	—	—	—	—	—	—	—	—
Benzo(a)pyrene	ND	ND	ND	ND	—	—	—	—	—	—	—	—
Benzo(b)fluoranthene	ND	ND	ND	ND	—	—	—	—	—	—	—	—
Benzo(k)fluoranthene	ND	ND	ND	ND	—	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	ND	ND	ND	ND	—	—	—	—	—	—	—	—
bis(2-Ethylhexyl)phthalate	5.71E-02	2.00E-02*	ND	2.00E-02	Particle, extrarrespiratory effects	Inc liver wt	—	Inc liver wt	ECAO-3/95	—	—	IRIS-11/96
2-Butanone	2.86E-01	2.00E+00	2.86E-01	6.00E-01	Decreased birth wt	Decreased birth wt	Decreased fetal birth wt	Decreased fetal birth wt	HEAST-FY95	HEAST-FY95	IRIS-11/96	IRIS-11/96
Butylbenzylphthalate	ND	2.00E+00	ND	2.00E-01	—	Altered liver wt	—	Increased liver wt	—	HEAST-FY95	—	IRIS-11/96
Chrysene	ND	ND	ND	ND	—	—	—	—	—	—	—	—
Diethylphthalate	ND	8.00E+00	ND	8.00E-01	—	Decreased growth and wt	—	Decreased growth rate	—	HEAST-FY95	—	IRIS-11/96
Di-n-butylphthalate	ND	1.00E+00	ND	1.00E-01	—	Inc mortality	—	Inc mortality	—	HEAST-FY95	—	IRIS-11/96
Fluoranthene	ND	4.00E-01	ND	4.00E-02	—	Kidney nephropathy, liver wt changes	—	Inc liver wt	—	HEAST-FY95	—	IRIS-11/96
Fluorene	ND	4.00E-01	ND	4.00E-02	—	Decreased red blood cells	—	Dec red blood cells, packed cell volume & hemoglobin	—	HEAST-FY95	—	IRIS-11/96
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	—	—	—	—	—	—	—	—
Methylene Chloride	8.57E-01	6.00E-02	8.57E-01	6.00E-02	Liver toxicity	Liver toxicity	Liver toxicity	Liver toxicity	HEAST-FY95	HEAST-FY95	HEAST-FY95	IRIS-11/96
2-Methylnaphthalene	ND	ND	ND	ND	—	—	—	—	—	—	—	—
2-Methylphenol	ND	5.00E-01	ND	5.00E-02	—	Dec wt gain, neurotoxicity	—	Dec body wt, neurotoxicity	—	HEAST-FY95	—	IRIS-11/96
Naphthalene	1.26E-04	4.00E-02*	ND	4.00E-02	Nasal effects	—	—	—	ECAO-5/95	ECAO-5/95	—	ECAO-5/95
4-Nitroaniline	ND	3.00E-03*	ND	3.00E-03	—	Reduced fetal weight	—	Reduced fetal weight	—	ECAO-5/95	—	ECAO-5/95
Phenanthrene	ND	ND	ND	ND	—	—	—	—	—	—	—	—
Pyrene	ND	3.00E-01	ND	3.00E-02	—	Kidney effects	—	Kidney effects	—	HEAST-FY95	—	IRIS-11/96

ND - No Data

ECAO - Environmental Criteria and Assessment Office Date indicates date of correspondence

IRIS - Integrated Risk Information System Date indicates access to IRIS

HEAST - Health Effects Assessment Summary Tables Date indicates the fiscal year they were published

\* - Chronic reference doses were used when subchronic reference doses were unavailable in accordance with RAGS

TABLE B-2

**CONSTRUCTION SPOILS LANDFILL (LF-024) - HEALTH RISK ASSESSMENT  
TOXICITY VALUES: POTENTIAL NONCARCINOGENIC EFFECTS**

Chemical	Reference Dose (mg/kg day)				Critical Effect(s)				Reference - Date			
	Subchronic		Chronic		Subchronic		Chronic		Subchronic		Chronic	
	Inhalation RID	Oral RID	Inhalation RID	Oral RID	Inhalation	Oral	Inhalation	Oral	Inhalation	Oral	Inhalation	Oral
Aluminum	1.43E-03*	1.00E+00*	1.43E-03	1.00E+00	Neurotoxic effects	Neurotoxic effects	Neurotoxic effects	Neurotoxic effects	ECAO-4/95	ECAO-5/95	ECAO-4/95	ECAO-5/95
Antimony	ND	4.00E-04	ND	4.00E-04	—	Inc. mortality, altered blood chemistry	—	Longevity, blood glucose and cholesterol	—	HEAST-FY95	—	IRIS-11/96
Arsenic	ND	3.00E-04	ND	3.00E-04	—	Hyperpigmentation, keratosis	—	Hyperpigmentation, keratosis, vascular complications	—	HEAST-FY95	—	IRIS-11/96
Barium	ND	7.00E-02	ND	7.00E-02	Fetotoxicity, inc. bp	Inc. blood pressure	Fetotoxicity, inc. bp	Inc. blood pressure	—	HEAST-FY95	—	IRIS-11/96
Beryllium	ND	5.00E-03	ND	5.00E-03	—	No adverse effects	—	No adverse effects	—	HEAST-FY95	—	IRIS-11/96
Chromium(III)	ND	1.00E+00	ND	1.00E+00	—	No effects observed	—	No effects observed	—	HEAST-FY95	—	HEAST-FY95
Chromium(VI)	ND	2.00E-02	ND	5.00E-03	—	No effects observed	—	No effects observed	—	HEAST-FY95	—	IRIS-11/96
Cobalt	5.71E-06*	ND	5.71E-06	ND	Respiratory lesions, thyroid effects	—	Respiratory lesions, thyroid effects	—	ECAO-5/95	—	ECAO-5/95	—
Cyanide	ND	2.00E-02	ND	2.00E-02	—	Wt. loss, myelin degeneration	—	Wt. loss, myelin degeneration	—	HEAST-FY95	—	HEAST-FY95
Lead	ND	ND	ND	ND	—	—	—	—	—	—	—	—
Manganese (water)	ND	5.00E-03	ND	2.40E-02	—	CNS effects	CNS effects	CNS effects	—	HEAST-FY95	—	EPA REG II
Manganese (food)	1.43E-05*	1.40E-01	1.43E-05	1.40E-01	—	CNS effects	—	CNS effects	IRIS-11/96	HEAST-FY95	IRIS-11/96	IRIS-11/96
Mercury	8.57E-05	ND	8.57E-05	ND	CNS effects	—	CNS effects	—	HEAST-FY95	—	HEAST-FY95	—
Nickel	ND	2.00E-02	ND	2.00E-02	—	Dec. body and organ wt	—	Dec. body and organ wt	—	HEAST-FY95	—	IRIS-11/96
Selenium	ND	5.00E-03	ND	5.00E-03	—	Clinical selenosis	—	Clinical selenosis	—	HEAST-FY95	—	IRIS-11/96
Thallium	ND	ND	ND	ND	—	—	—	—	—	—	—	—
Vanadium	ND	7.00E-03	ND	7.00E-03	—	None observed	—	None observed	—	HEAST-FY95	—	IRIS-11/96
Zinc	ND	3.00E-01	ND	3.00E-01	—	Decreased blood enzyme	—	Anemia, decrease in erythrocyte superoxide dismutase	—	HEAST-FY95	—	IRIS-11/96

ND - No Data

ECAO - Environmental Criteria and Assessment Office. Date indicates date of correspondence.

IRIS - Integrated Risk Information System. Date indicates access to IRIS.

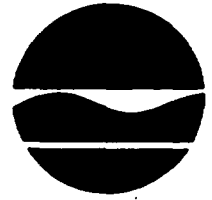
HEAST - Health Effects Assessment Summary Tables. Date indicates the fiscal year they were published.

\* Chronic reference doses were used when subchronic reference doses were unavailable in accordance with RAGS.

## **APPENDIX C**

### **DECLARATION OF CONCURRENCE**

**New York State Department Of Environmental Conservation  
50 Wolf Road, Albany, New York 12233-7010**



**John P. Cahill  
Acting Commissioner**

Mr. Thomas W. L. McCall, Jr.  
Deputy Assistant Secretary of the Air Force  
SAF/ MI  
1660 Air Force, Pentagon  
Washington, DC 20331-1660

Dear Mr. McCall:

Re: Record of Decision - Landfill 024  
Plattsburgh Air Force Base, ID No. 510003

In response to the Record of Decision (ROD) for Landfill 024 (LF 024) submitted and signed by yourself, I wish to concur with the remedial action plan as put forth in the ROD. This remedy includes:

- A 12-inch thick cover over the landfill consisting of a 9-inch borrow layer, a 3-inch topsoil layer and a vegetative cover.
- Deed restrictions to prevent any adverse action leading to the deterioration of the landfill cap, to prohibit the installation of any wells for drinking water or any other purpose which could result in the use of the underlying groundwater and to prohibit the excavation of the landfill cap without prior approval of the New York State Department of Conservation. Restrictions will also be imposed to limit development of any structure on the landfill site which would adversely effect human health and safety.
- Establishment of a groundwater monitoring system.
- Conducting five-year site reviews.

If you have any questions please contact Mr. Lister at (518) 457-3976.

Sincerely,

Michael J. O'Toole, Jr.  
Director  
Division of Environmental Remediation

c: J. Fox, USEPA-Region II  
A. Lowas  
M. Sorel, PAFB

67 11 11 10  
90 10 11 10

**APPENDIX D**

**PUBLIC MEETING TRANSCRIPTS**

PUBLIC HEARING FOR REMEDIAL ACTIONS AT FORMER  
LANDFILL LF-021 AND FORMER LANDFILL LF-024

JANUARY 16, 1997

OLD COURTHOUSE, 133 MARGARET STREET, 2ND FLOOR  
PLATTSBURGH, NEW YORK.

This proceeding was stenographically reported by Susan Bretschneider, Certified Shorthand Reporter, and commenced at 7:00 p.m. at the above-mentioned location.

MR. SOREL: Okay, I guess we'll go ahead and get started. This is the public meeting for Landfill 21 and Landfill 24. I'd like to begin the public meeting for the remedial actions at the Former Landfill LF-21 and LF-24. For those who don't know me, I'm Mike Sorel, the BRAC Environmental Coordinator working for the Air Force Base Conversion Agency at Plattsburgh. I will be presiding over the meeting, the main purpose of which is to allow the public the opportunity to comment on the Air Force's action for this site.

Assisting me tonight in this presentation are the following people: Steve Gagnier, the project manager for these actions, and Brady Baker, the project engineer, both with the Air Force Base Conversion Agency, and Bruce Przybyl, the project manager with URS Greiner. These individuals are here to provide answers

1 to technical questions you might have about the  
2 alternatives available to the Air Force for cleaning up  
3 the site.

4 Tonight's agenda will consist of a description  
5 of the remedial action and an explanation of how it will  
6 improve the environment. After that, we will move to  
7 the most important part of this meeting, the part where  
8 you provide your comments on the remedial action.

9 First, however, I would like to take care of  
10 several administrative details.

11 As you can see, everything being said here  
12 tonight is being taken down word for word by a  
13 professional court reporter. The transcript will become  
14 part of the administrative record for the sites.

15 We would like everyone to complete the sign-in  
16 sheet at the door. We will use the sheet to review our  
17 mailing list for the site.

18 At the conclusion of the presentation, we will  
19 open the floor up to comments and questions. I would  
20 ask that you hold your questions until the presentation  
21 for both sides is complete. If you have a prepared  
22 statement, you may read it out loud or turn it in  
23 without reading it. In any case, your comments will  
24 become part of the record. Also, we have cards at the  
25 front desk for your use for any written comments. If

1       you turn in any written comments, please write your name  
2       and address on them.

3               If you later decide to make comment or add  
4       something that you said here, you may send additional  
5       comments to us at this address. The public comment  
6       period ends today on Landfill 21 and on February 6th for  
7       Landfill 24. I will show this address slide again at  
8       the end of the meeting.

9               The final point is that our primary purpose  
10       tonight is to listen to you. We want to hear your  
11       comments on any issues you are concerned about at these  
12       sites, and we will try to answer any questions you may  
13       have. We want you to be satisfied with the action we  
14       take will properly address and fully address the  
15       problems at this site.

16              Now, I would like to turn the meeting over to  
17       Bruce Przybyl.

18              MR. PRZYBYL: Good evening. We'd like to talk  
19       to you today about the Air Force's recommended  
20       alternatives for remedial action at two landfills at the  
21       Plattsburgh Air Force Base. The first I'd like to talk  
22       about is Landfill 21. Landfill 21 is located in the  
23       northwest corner of the base outside the perimeter fence  
24       and north of Route 22. The area is designated as open  
25       space for land use planning.

1 I would first like to go through the process  
2 by which the decisions were made in reaching the  
3 conclusions in coming to the recommended alternative.

4 The process started by preparation of a  
5 preliminary assessment or records search which looked at  
6 the history of the site and the disposal practice of the  
7 site. At that time, a recommendation was made, further  
8 investigation was necessary, a site investigation was  
9 undertaken.

10 The site investigation showed it is a  
11 relatively small site, and the conclusions of that were  
12 to recommend a larger scale investigation, a remedial  
13 investigation.

14 The remedial investigation assessed health  
15 (sic) to human health -- to humans and the environment  
16 in addition to collection of many samples. From that a  
17 preferred alternative was determined and documented in a  
18 proposed plan which is available at the Feinberg Library  
19 and has been for a period of time.

20 Throughout this period, the New York State  
21 Department of Environmental Conservation and United  
22 States Environmental Protection Agency have provided  
23 review and comment to each document along the way and  
24 have concurred in principle with the remedial  
25 alternative.

1           We are at this stage, the public meeting and  
2           comment, and we're here to answer your questions and  
3           incorporate your comments into the record of decision  
4           which is the legal instrument for the remediation.

5           The Landfill 21 is about six acres in size.  
6           It was active from 1956 to 1959. It accepted domestic  
7           waste and sludge from the industrial wastewater  
8           treatment plant at the base. The other area is adjacent  
9           to some wetland areas and is located 500 feet from the  
10          Saranac River.

11          The character of the site is generally --  
12          currently generally vegetative with mature trees and  
13          grasses covering the site, but there is locations where  
14          debris is protruding from the landfill surface. One  
15          such location is depicted in the lower of the two  
16          photographs.

17          The remedial investigation included the  
18          excavation of many test trenches to determine the extent  
19          of the fill and to sample the subsurface materials and  
20          fill, boring, well installation and groundwater  
21          sampling.

22          A variety of chemicals were detected in  
23          subsurface soil or fill materials. Polycyclic aromatic  
24          hydrocarbons were detected. These were the products of  
25          incomplete combustion of fossil fuels, metals.

1 Pesticides such as DDT and PCBs were also detected.  
2 These were not detected in any particular pattern. The  
3 pattern of contamination is somewhat heterogenous in the  
4 landfill.

5 In groundwater, only three compounds were  
6 detected that exceeded the New York State standards, and  
7 those were two polycyclic aromatic hydrocarbons and  
8 DDT. It was worthy to note that there was an absence of  
9 volatiles, which are quickly moving compounds, in  
10 groundwater. There were none of those compounds.

11 We also examined contaminant migration  
12 pathways at the site. Since few volatiles were found,  
13 we consider the volatilization pathway for contaminant  
14 migration is insignificant.

15 In addition, since the site is vegetated,  
16 there's a limited potential for dust generation and,  
17 therefore, we considered contaminant transport via dust  
18 pathway as insignificant.

19 Also, we consider run-off pathways to be  
20 negligible because of the high permeability of the  
21 landfill. Most of the precipitation will infiltrate  
22 into the landfill and, also, topographic constraints --  
23 and actually the overhead here we have is somewhat  
24 misleading, this slope somewhat kind of rises again  
25 before it drops again into the Saranac River. All of

1 the precipitation will infiltrate into the ground before  
2 it gets to the river.

3 One pathway that is potentially significant is  
4 the percolation of rainwater through the landfill  
5 picking up contaminants along the way and then transport  
6 through the groundwater.

7 Again, the contaminants detected in  
8 groundwater were of the type that do not move very  
9 quickly or very far in groundwater.

10 We conducted a human health risk assessment to  
11 determine the potential risk to human health posed by  
12 the site, and that was broken down into two scenarios,  
13 including a current use scenario in which we assessed  
14 potential impacts to utility workers -- there was a  
15 right-of-way, utility right-of-way adjacent to the site  
16 -- and also to trespassers.

17 The calculations indicated no significant  
18 carcinogenic or noncarcinogenic risk to these potential  
19 receptors.

20 The second scenario was a future use scenario  
21 in which we assessed the risk to a campground populated  
22 by campers who were utilizing the groundwater for  
23 showering and potable water, camping right on the  
24 landfill. We considered this to be a conservative  
25 hypothetical scenario. It's not something that's

1 envisioned; however, this is a conservative benchmark in  
2 which we can assess the potential of contaminant risk.

3 The future use scenario yielded no  
4 noncarcinogenic risk to campers; however, there was a  
5 significant risk represented by this five times 10 to  
6 the minus four due to exposure to soils on the  
7 landfill. This is a carcinogenic risk.

8 It's significant to note that there was no  
9 risk calculated -- or no significant risk calculated for  
10 groundwater ingestion pathways despite the fact that  
11 three New York State standards were exceeded. They were  
12 exceeded but not to a great extent, enough to yield  
13 risks in our calculations.

14 It also should be noted we performed an  
15 ecological risk assessment and determined a potential --  
16 potentially a slight potential risk to mammals that come  
17 into contact with the soil and fill of the landfill.  
18 Based on the risk assessment, we came up with a  
19 remediation or remedial goal to the site.

20 The goal is to prevent direct contact with  
21 on-site soil, fill materials by human or ecological  
22 receptors basically as a response to the carcinogenic  
23 risk calculated in the risk assessment and the minor  
24 ecological risk that was indicated in the ecological  
25 risk assessment.

1           Using the U.S. EPA Superfund Accelerated  
2 Cleanup Model, we then developed the basic components of  
3 our remedial alternative. And these include a landfill  
4 cap and institutional controls. There were three types  
5 of landfill caps looked at, and they were examined for  
6 their ability to achieve the goal that we set for  
7 this -- this remediation, and all three of these  
8 landfill caps accomplish the goal adequately.

9           Therefore, we looked at cost and picked the  
10 most cost effective cap, which is a native soil cover as  
11 our selected remedial component.

12           Also, a basic component remedy is  
13 institutional controls in which we propose site  
14 development restrictions to protect the integrity of the  
15 cap once it's established and also to restrict water  
16 use, although that's not one of -- it's not reflected in  
17 our goal, there are three exceedances of New York State  
18 Groundwater Quality Criteria and then, therefore, we  
19 thought it would be prudent to restrict the use of the  
20 groundwater.

21           Therefore, our remedial alternative includes  
22 the following elements: A native soil cover to prevent  
23 direct contact of human and ecological receptors with  
24 contaminated soil and fill materials and development  
25 restrictions which include restrictions to prevent any

1 adverse action leading to the deterioration of the  
2 landfill cover and prohibition against any excavation of  
3 the landfill cover without prior appropriate approvals,  
4 and this will be implemented to protect the integrity of  
5 the cap over the long term.

6 We are also going to prohibit the installation  
7 of any wells for drinking or any other purposes which  
8 could result in the use of the underlying groundwater.  
9 And this is in response to the exceedances of New York  
10 State Groundwater Quality Criteria in groundwater.

11 We are also -- two other elements of the  
12 remedy that are necessary, one is groundwater  
13 monitoring. We'll supplement our existing groundwater  
14 monitoring network and sample it routinely in order to  
15 ensure that the slow-moving compounds that we have  
16 detected will not migrate off site. We don't expect  
17 them to, but the routine groundwater monitoring will  
18 ensure that that will not happen in the future.

19 And, finally, there's a five year site review  
20 process in which the Air Force, the United States  
21 Environmental Protection Agency and the New York State  
22 Department of Environmental Conservation will review all  
23 the data collected throughout the five years and ensure  
24 that the remediation is being effective in protecting  
25 human health and the environment.

1           The second landfill I am going to talk about  
2           today is the construction spoils landfill or Landfill  
3           LF-24. This landfill is located to the -- in the  
4           southeast corner of the base about 200 feet north of the  
5           Salmon River as indicated on this figure right here.  
6           This area has been designated as open space for light  
7           industrial use for land use planning purposes, either  
8           or.

9           Once again, I'm showing an overhead showing  
10          the process by which we reached our remedial  
11          alternative, and it's similar to that for LF-21 in which  
12          we are soliciting public comments at this time, and  
13          we've received New York State Department of  
14          Environmental Conservation input and United States  
15          Environmental Protection Agency input along the way and,  
16          again, comments received today will be incorporated into  
17          the record of decision.

18          Landfill 24 is less than one acre in size and  
19          accepted construction and demolition debris, concrete  
20          rebar, things of that nature, metals, from the period of  
21          1980 to 1986. The landfill is covered generally with  
22          brush and trees. There are very few sparse areas. One  
23          of them is indicated in the lower of the two photographs  
24          here but generally well covered with brush and trees.  
25          To the south near the toe of the slope, the landfill

1 steepens considerably, and construction and demolition  
2 debris is protruding from the landfill cover as  
3 indicated by the lower of the two photographs.

4 The upper photograph is the top of the slope,  
5 southern slope, and the lower photograph depicts the toe  
6 of the slope, the southern slope. The Air Force  
7 considers this to be a general physical hazard to  
8 trespassers and people walking in this area.

9 The landfill was investigated and site  
10 investigation in which test trenching was conducted to  
11 determine the extent of the fill and determine its  
12 character. We also did boring and monitoring wells and  
13 looked at groundwater samples.

14 The nature of the fill material is essentially  
15 free of organic contaminants; however, metals were  
16 elevated above background in the fill materials.

17 Again, groundwater was examined, and it was  
18 also found to be essentially free of organic materials,  
19 organic contaminants; however, several metals were  
20 detected in exceedance of New York State Groundwater  
21 Quality Criteria.

22 I also should note that there were several  
23 drums found during test trenches at the site; however,  
24 none of these drums were found to be intact, many of  
25 them had no lids, were empty or just crushed prior to

1       being in the landfill.

2               We also looked at the potential contaminant  
3 migration pathways. And very similar to LF-21, there  
4 were no volatiles found and, therefore, the  
5 volatilization pathway was considered insignificant.

6               Since the landfill is heavily vegetated, there  
7 is limited potential for dust migration and  
8 contamination transport through that mechanism. Also,  
9 once again, this doesn't quite depict the slope  
10 correctly. It's much flatter there, and the run-off  
11 pathways are also considered to be insignificant. All  
12 of the rainfall will percolate into the landfill surface  
13 or be captured by topographic constraints and not reach  
14 the Salmon River directly.

15              However, again, we -- we have a potentially  
16 significant groundwater migration pathway, again, where  
17 rainwater percolates through the fill, picks up metal  
18 contaminants and transports them through the  
19 groundwater. And it should be noted again that the  
20 metal contaminants are also very slow-moving compounds.

21              Again, we conducted a human health risk  
22 assessment to determine potential risk to the receptors,  
23 and two scenarios were examined including current use  
24 scenario, which is basically no one is being exposed at  
25 the site except for trespassers, and the assessment

1 indicated no potential for carcinogenic risk,  
2 unacceptable carcinogenic risk or unacceptable  
3 noncarcinogenic risk.

4 A future use scenario was also examined. It  
5 was a bi-phased scenario in which the site would  
6 hypothetically be developed, and there would be a  
7 construction phase in which excavation would occur and  
8 building would be constructed, and then a second phase  
9 in which the buildings were already constructed and the  
10 area were landscaped and the industrial workers were  
11 using the facility routinely.

12 There were no unacceptable cancer risks  
13 indicated by the analysis. However, there were  
14 unacceptable noncarcinogenic risks indicated for  
15 inhalation of fugitive dust to construction workers.  
16 During construction there's considerable dust excavated,  
17 and there's a potential for exposure and adverse effects  
18 to these construction workers through inhalation of the  
19 fugitive dust with manganese adhered to it. Also, if  
20 groundwater were to be used at the site, there is a  
21 potential for adverse effects again from the compound  
22 manganese, and there is also potential for future  
23 problems from barium, vanadium and antimony.

24 One thing to note is that currently there is  
25 no risk to receptors via carcinogenic or noncarcinogenic

1 risk; however, there is a physical hazard posed by  
2 protruding debris along the steep southern slope and a  
3 couple other places in the landfill.

4 Based on the HRA, we determined some  
5 remediation goals. The first is to prevent construction  
6 workers from inhaling contaminated fugitive dust  
7 resulting from earth moving activities, and that's in  
8 response to the risk calculated for the inhalation of  
9 fugitive dust.

10 Second would be to prevent human ingestion of  
11 contaminated groundwater immediately down gradient of  
12 the site, and that's in response to the risk calculated  
13 for the ingestion of groundwater.

14 And, third, we would like to eliminate  
15 potential physical hazards to on-site workers and  
16 maintenance personnel.

17 Again, using U.S. EPA guidance, we determined  
18 the basic components of a remedy for the site. The  
19 landfill cap is necessary to -- to accomplish the third  
20 goal, and that is to eliminate potential physical  
21 hazards on site. There is no -- there is no potential  
22 chemical hazards due to direct contact with the fill.  
23 So the cap is only to eliminate the physical hazards.

24 Therefore, all three caps -- since the area  
25 will be regraded and debris covered and the potentially

1       unstable slopes eliminated, all three caps will be  
2       equally effective and cost is, therefore, looked at as  
3       the deciding factor between the caps, and we selected  
4       the least expensive of the three options, and that is a  
5       native soil cover.

6               Second we -- the -- the second basic component  
7       is institutional controls which includes site  
8       development restrictions, and that is to protect the  
9       integrity of the cap, water use restrictions to address  
10      our second remediation goal which is to prevent human  
11      ingestion of contaminated groundwater and, third, a  
12      cautionary notice concerning inhalation risks during  
13      earth moving activities, and that is to address our  
14      first remediation goals, to prevent construction workers  
15      from inhaling fugitive dust.

16             To recap, our recommended alternative consists  
17      of the native soil cap, to limit -- eliminate potential  
18      physical hazards from debris and also develop  
19      restrictions including restrictions to prevent any  
20      adverse action leading to the deterioration of the cap,  
21      prohibition against excavation of the landfill without  
22      prior appropriate approval and prohibition from  
23      installing any wells that could result in the use of the  
24      underlying groundwater.

25             Also, we are going to issue a notice

1 concerning potential site risk which is a notice  
2 provided concerning potential short-term health risks  
3 from inhaling dust during construction activities.  
4 Also, groundwater monitoring is a part of that. Also,  
5 metals in groundwater will move very slowly and will not  
6 get very far. We want to install a groundwater  
7 monitoring network to track that through time and make  
8 sure that the groundwater contaminants are not getting  
9 far off site and, also, in LF-21, it will be reviewed  
10 every five years by the U.S. EPA and the New York State  
11 Department of Environmental Conservation and the Air  
12 Force to determine whether it has continued to be  
13 effective, and that concludes my discussion.

14 MR. SOREL: At this time, I'd like to open up  
15 the meeting for questions. Since everything that is  
16 being said here tonight is being taken down, please  
17 state your name for the record before you make a  
18 statement.

19 Do we have any questions? Mr. Booth?

20 MR. BOOTH: Robert Booth. In each of your  
21 sites, we reach a conclusion about where you are headed  
22 next with a list of prohibitions, for instance, to  
23 prevent activities that would destroy the cap, prevent  
24 the drilling of wells that would tap groundwater,  
25 prevent excavation without a permit. Who or what sees

1       that these limitations are carried out, who gives the  
2       permit to excavate, how long is this oversight as to  
3       permits and prohibitions to continue, who's got the  
4       responsibility?

5               MR. SOREL: Good question. It's actually one  
6       that's come up in our discussions with the regulator  
7       that they have the very same concerns that you do.

8               There will be a transfer by deed, and when we  
9       start talking about transfer by deed, what we are going  
10      to do, in fact, if you look in the proposed plan,  
11      there's a paragraph in there that deals with that, and  
12      let me read what we put in there. It says: The deed  
13      will include appropriate restrictions to prevent any  
14      adverse action leading to the deterioration of the  
15      landfill cap to include prohibition from installing any  
16      wells for drinking water or any other purpose which  
17      could result in use of the underlying groundwater and  
18      the prohibition against any excavation of the landfill  
19      cap without prior approval of the New York State DEC.

20              So, essentially, we are saying at that point  
21      there will indeed be restrictions and, of course, the  
22      Air Force at that point would no longer be the owner of  
23      the property, so some of that will rely on the -- the  
24      local agencies having jurisdiction in that area.

25              For instance, if we are in the town of

1       Plattsburgh, then I would assume if there were  
2       construction, there would be issues of the building  
3       permit and at that time, those prohibitions would be  
4       noted. So through that process, we believe that that's  
5       how these prohibitions would be controlled.

6               MR. BOOTH: That makes sense that there would  
7       be public records that follow the land that way and will  
8       the restrictions mention that DEC is a reference point?

9               MR. SOREL: Correct. In fact, we have already  
10      coordinated that with them. They have agreed to be that  
11      reference point.

12              MR. BOOTH: And that also if interested, why,  
13      the township or the city or the county also could step  
14      in, but at least there's a list of restrictions and  
15      restrictive covenants really?

16              MR. SOREL: Right, right.

17              MR. BOOTH: And who to refer to to start  
18      complying or finding out the answers?

19              MR. SOREL: And there would also be a notice  
20      of any hazardous materials present that would follow  
21      this as well, so anybody that would be issuing that  
22      building permit or whatever.

23              MR. BOOTH: In 25 years, that will all be  
24      forgotten, and I was just wondering.

25              MR. SOREL: We will file a deed.

1 MR. BOOTH: And you have got it if there are  
2 recorded documents.

3 MR. SOREL: Sure.

4 MR. BOOTH: Thank you.

5 MR. SOREL: Any other questions?

6 Okay, since everybody seems to have made their  
7 comments, we would like to conclude this meeting.

8 I would like to add that the proposed plans  
9 and other documents relating to these sites are  
10 available for review at the information repository  
11 located in Special Collections at the Feinberg Library,  
12 SUNY-Plattsburgh.

13 Thank you very much for coming.

14 (This hearing was concluded at 7:37 p.m.)  
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C E R T I F I C A T E

STATE OF VERMONT )

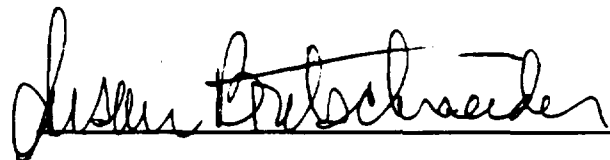
COUNTY OF CALEDONIA )

I, Susan Bretschneider, a Notary Public within and for the State of Vermont, do hereby certify that I stenographically reported the proceedings of the public hearing in re: Remedial Actions at Former Landfill LF-21 and Former Landfill LF-24 on January 16, 1997 beginning at 7:00 p.m., at the Old Courthouse, 133 Margaret Street, 2nd Floor, Plattsburgh, New York.

I further certify that the foregoing proceeding was taken by me stenographically and thereafter reduced to typewriting, and the foregoing 20 pages are a full, true and correct transcription of the proceedings.

I further certify that I am not related to any of the parties thereto and that I am in no way interested in the outcome of said proceedings.

Dated at Barre, Vermont, this 23rd day of January, 1997. My commission expires February 10, 1999.



SUSAN BRETSCHNEIDER, Notary Public

ERRATA SHEET

TO: Marcia G. Wolosz  
DATE: February 14, 1997  
RE: 1-16-96 Public Hearing  
FROM: Capitol Court Reporters, P.O. Box 329,  
Burlington, Vermont 05402

Please read through the enclosed transcript. If you wish to make any corrections, please do so below referring to page and line number followed by the correction.

Page	Line No.	Change
2	21	"sides" should be "sites"
3	3	insert "a" before "comment"
3	13	"with" should be "that"
4	11	"small site" should be "low contamination site"
5	8	"other area" should be "site"
5	23	place a colon after materials:
5	25	"fuels. Metals,"
6	1	"Pesticides" should be "pesticides"
6	1	place a comma after DDT,
8	12	before the word "enough" put "not"
17	9	before the words "in LF-021" put "as with"
18	6	change "regulator" to "regulators." (period at end of word)
18	7	"They" starts a new sentence
18	10	change "do," to "do--"
19	2-3	replace "issues of the building permit" with "a building permit issued"

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Please read through the enclosed transcript. If you wish to make any corrections, please do so below referring to page and line number followed by the correction.

Page	Line No.	Change
3	5 & 6	Sentence beginning "the public comment.." should read, "The public comment period ends on January 23rd for LF 21, as stated in the public notice advertised in the <u>Plattsburgh Press-Republican</u> on Monday, December 23, 1996."

## SIGN-IN SHEET

NAME	ORGANIZATION	PHONE NUMBER
Marcia Wolosz	WPT	
Brady Baker	AFBCA	563-2871
Olivia Bretschneider	CCR	802-476-0953
Bruce Przybyl	URSG	566-7022
Steven Adellor	URSG	566-7022
Steve Gagnier	AFBCA	563-2871
Guy Fenwick	RAM	
R T Boora	Self	563-1253
Gary Gutz	Self	563-7021
David E. Comfort	NYSIA	566-9546 ext 864
Wayne Myrne	RAM	
Al Horner	AFBCA	

## **APPENDIX E**

### **RESPONSIVENESS SUMMARY**



DEPARTMENT OF THE AIR FORCE  
AIR FORCE BASE CONVERSION AGENCY

25 Feb 97

MEMO FOR RECORD

SUBJECT: Responsiveness Summary: Public Comment Period for Remedial Action at  
LF-024

**A. OVERVIEW**

LF-024 is a former landfill located in the southeast corner of the former Plattsburgh Air Force Base, about 200 feet north of the Salmon River. The less-than-one-acre-sized landfill accepted construction and demolition debris from the period of 1980 to 1986. Evidence of this can be seen in the debris protruding from the landfill cover. The Air Force considers this to be a general physical hazard to trespassers and people walking in the area. The fill material and groundwater were found to be essentially free of organic contaminants, but metals were detected at levels elevated above background in the fill materials and in exceedance of New York State Groundwater Quality criteria in the shallow aquifer.

The BRAC Cleanup Team reviewed a number of presumptive remedies (as defined by the U.S. Environmental Protection Agency) for remediating the contamination at LF-024. Based on the nature of the contamination and knowledge of site conditions obtained from the site investigation, the Air Force selected a combined approach of landfill capping and institutional controls for containing the site. This was found to be the most technically and economically acceptable alternative for achieving the BRAC team's goals, which are to prevent direct contact with on-site soil/fill and groundwater by human or ecological receptors. The remedial action is detailed in the proposed plan dated December 1996.

**B. PUBLIC MEETING & PUBLIC COMMENT PERIOD**

A Public Meeting was held on the remedial action for LF-024 on 16 January 1997 at 7:00 p.m. It was held at the Old Court House in the City of Plattsburgh, County of Clinton, NY. A prepared statement was read by Mr. Michael D. Sorel, PE, the BRAC Environmental Coordinator for the Air Force Base Conversion Agency (AFBCA). Mr. Bruce Przybyl of URS Greiner, Inc., detailed the proposed remedial action for the audience. The floor was then opened to the public for questions and comments. Concluding the meeting was a statement by Mr. Sorel that additional comments could be sent to the Air Force. As advertised in the *Plattsburgh Press-Republican*, the public

comment period ran from 6 January 1997 to 6 February 1997. The Public Meeting was recorded by a court reporter, Ms. Susan Bretschneider of Vermontville, NY.

### **C. SUMMARY OF COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND AGENCY RESPONSES**

Mr. Robert Booth, a member of the Plattsburgh AFB Restoration Advisory Board, wanted to know who would be responsible for seeing that any limitations on site development are carried out.

Mr. Sorel replied that this has been the subject of discussion with the U.S. Environmental Protection Agency (USEPA) and the New York State Department of Environmental Conservation (NYSDEC). Mr. Sorel read a paragraph from the proposed plan that deals with the wording in the future transfer deed. Included will be restrictions of any activities leading to the deterioration of the landfill cap, and use of the underlying groundwater. Since the Air Force will no longer own the property, the local agency responsible for issuing building permits will need to make written reference to the prohibitions. All of these documents will remain on file. Also, the NYSDEC has agreed to act as the reference agency for oversight.

From the time of the Public Meeting until the deadline of 6 February 1997, no further questions or comments were received by the Air Force regarding this subject.

  
MICHAEL D. SOREL, PE  
BRAC Environmental Coordinator

## ROD FACT SHEET

### SITE

Name : Plattsburgh Air Force Base  
Landfill LF-024  
Location/State : Plattsburgh, New York  
EPA Region : 2  
HRS Score(date): 30.34 (9/22/88) Basewide score, not landfill  
Site ID # : NY4571924774

### ROD

Date Signed: 3/25/97  
Remedy/ies: Native Soil Cover, Institutional Controls  
Operating Unit Number: OU-8 (IRP Site LF-024)  
Capital cost: \$ 59,000 in 1997 dollars)  
Construction Completion: April 1998  
O & M in 1998: \$ 4,120 (in 1997 dollars)  
1999: \$ 4,120  
2000: \$ 4,120  
2001: \$ 4,120  
Present worth: \$ 136,585 (6% discount rate, 30 years O&M,  
O & M drops to \$ 1,030/yr in 6th year)

### LEAD

Remedial - Federal Facility Lead  
Primary contact - Bob Morse (212) 637-4331  
Secondary contact - Bob Wing (212) 637-4332  
Main PRP(s) - U.S. Air Force  
PRP Contact - Mike Sorel (518) 563-2871

### WASTE

Type - Metals (mainly manganese)  
Medium - Soil and Groundwater  
Origin - Construction and Demolition (C & D) Landfill  
Est. quantity - One acre